

**HEARING TO RECEIVE TESTIMONY ON THE
COMMITTEE'S INVESTIGATION INTO COUN-
TERFEIT ELECTRONIC PARTS IN THE DE-
PARTMENT OF DEFENSE SUPPLY CHAIN**

Tuesday, November 8, 2011

U.S. SENATE
COMMITTEE ON ARMED SERVICES
Washington, DC.

The committee met, pursuant to notice, at 9:34 a.m. in room SD-G50, Dirksen Senate Office Building, Senator Carl Levin (chairman) presiding.

Committee members present: Senators Levin, Udall, Hagan, Manchin, McCain, Inhofe, Chambliss, Brown, Ayotte, and Collins.

Committee staff members present: Richard D. DeBobes, staff director; and Leah C. Brewer, nominations and hearings clerk.

Majority staff members present: Joseph M. Bryan, professional staff member; Ilona R. Cohen, counsel; Ozge Guzelsu, counsel; Richard W. Fieldhouse, professional staff member; and Peter K. Levine, general counsel.

Minority staff members present: David M. Morriss, minority staff director; Daniel A. Lerner, professional staff member; and Bryan D. Parker, minority investigative counsel.

Staff assistants present: Kathleen A. Kulenkampff, Brian F. Sebold, and Bradley S. Watson.

Committee members' assistants present: Casey Howard, assistant to Senator Udall; Roger Pena, assistant to Senator Hagan; Joanne McLaughlin, assistant to Senator Manchin; Jordan Baugh, assistant to Senator Gillibrand; Charles Prosch, assistant to Senator Brown; Brad Bowman and John Easton, assistants to Senator Ayotte; and Ryan Kaldahl, assistant to Senator Collins.

OPENING STATEMENT OF SENATOR CARL LEVIN, CHAIRMAN

Chairman LEVIN. Good morning, everybody. Today's hearing is a product of the Armed Services Committee's ongoing investigation into counterfeit electronic parts in the Department of Defense's (DOD) supply chain. We will probably hold at least one additional hearing to discuss what the Department is doing to keep counterfeit electronic parts out of defense systems.

We have three panels of witnesses today, so I expect that the hearing may continue into the afternoon, and I also expect that we will break for lunch. And this will all be determined by how long these first two panels take. We also have a vote scheduled, I understand, for 12:15 which also could affect that decision.

I want to thank Senator McCain for his efforts in this investigation. I want to thank our staffs, the investigative staffs, for their very, very hard work.

The systems that we rely on for national security and the protection of our military men and women depend on the performance and reliability of small, highly sophisticated electronic components. Our fighter pilots rely on night vision systems enabled by transistors the size of paper clips to identify targets. Our troops depend on radios and GPS devices and the microelectronics that make them work to stay in contact with their units and to get advance warning of threats that may be just around the next corner. The failure of a single electronic part could leave a soldier, sailor, airman, or marine vulnerable at the worst possible time. A flood of counterfeit electronic parts has made it a lot harder to have confidence that will not happen.

In some industries, the term “counterfeit” suggests an unauthorized fake, a knock-off of an original product. The definition of “counterfeit” as it relates to electronic parts, which has been endorsed by the Department of Defense and defense contractors alike, includes both fakes and previously used parts that are made to look new and are sold as new.

In March of this year, we announced an Armed Services Committee investigation into counterfeit parts in the DOD supply chain. During the course of the committee’s investigation, virtually every one of the dozens of people our investigators have spoken with, from defense contractors to semiconductor manufacturers, to electronic component brokers—every one of them has pointed to China, specifically the City of Shenzhen in Guangdong Province as the primary source of counterfeit electronic parts.

While this hearing is focused mainly on the national security implications of counterfeit electronic parts, the rampant theft of U.S. intellectual property by Chinese counterfeiters also severely impacts our economic security. According to the Semiconductor Industry Association, the SIA, U.S. semiconductor manufacturers employ nearly 200,000 American workers. Counterfeiting puts those jobs at risk and robs us of American jobs yet to be created. The SIA estimates that counterfeiting costs U.S. semiconductor manufacturers \$7.5 billion a year in lost revenue and costs U.S. workers nearly 11,000 jobs.

This spring, we attempted to send Armed Services Committee staff to mainland China to get a firsthand look at the counterfeiting industry. I wrote the Chinese Ambassador to the United States informing him that the trip was part of the committee’s official duties. Shortly after my letter, an official at the Chinese embassy told committee staff that if the results of the investigation were not positive, it could be, quote, damaging to the U.S.-China relationship. That is exactly backwards. What is damaging to U.S.-China relations is China’s refusal to act against brazen counterfeiting that is openly carried out in China.

In June, we sent our staff to Hong Kong where a visa is not required and the staff again sought entry into mainland China. But appeals on our behalf through our most senior diplomats in Hong Kong and Beijing fell on deaf ears and our staff was refused entry. That refusal only highlights the Chinese Government’s total lack of

transparency and their unwillingness to act to stem the tide of dangerous counterfeits produced in China that are swamping the market.

Looking at just a slice of the defense contracting universe, committee staff asked a number of large defense contractors and some of their testing companies to identify cases in which they had found suspected counterfeit parts over a 2-year period. They reported 1,800 cases covering a total of 1 million individual parts. Of those 1,800 cases, we selected about 100 to track backwards through the supply chain. So where did the trails ultimately lead? The overwhelming majority, more than 70 percent, led to China, and with few exceptions, the rest came from known resale points for parts that came from China.

Counterfeit parts from China all too often end up in critical defense systems in the United States. China must shut down the counterfeiters that operate with impunity in their country. If China will not act promptly, then we should treat all electronic parts from China as suspect counterfeits. That would mean requiring inspections at our ports of all shipments of Chinese electronic parts to ensure that they are legitimate. The cost of these inspections would be borne by shippers, as is the case with other types of border inspections.

I want to describe now how these counterfeits are made and why they are so dangerous.

Much of the material used to make counterfeit electronic parts is electronic waste, e-waste, shipped from the United States and the rest of the world to China. E-waste is shipped into Chinese cities like Shantou in Guangdong Province where it is disassembled by hand, sometimes washed in dirty river water, and dried on city sidewalks. Once they have been washed, parts may be sanded down to remove the existing part number and other marks on the part that indicate its quality or performance. In a process known as "black topping," the tops of the parts may be recoated to hide sanding marks. State-of-the-art printing equipment is used to put false markings on the parts showing them to be new or of higher quality, faster speed, or able to withstand more extreme temperatures than those for which they were originally manufactured. When the process is complete, the parts are made to look brand new to the naked eye. Once they have been through the counterfeiting process, the parts are packaged and shipped to Shenzhen or other cities to be sold in the markets or to be sold on the Internet.

One of our witnesses today has described to the committee, quote, whole factories set up in China just for counterfeiting and counterfeit electronic parts are sold openly from shops in Chinese markets.

This morning, we will hear from Richard Hillman of the U.S. Government Accountability Office, the GAO, about just how pervasive the presence of China-based counterfeiters is online. Mr. Hillman will share the preliminary results of the investigative work that we asked him to undertake. GAO's stunning results not only point directly to China as the source of the counterfeiting problem, they show just how far the counterfeiters are willing to go for money. GAO investigators went out to buy electronic parts that go into defense systems and found that not only would compa-

nies supply counterfeit parts when the GAO sought legitimate parts, suppliers also sold GAO investigators, acting undercover, parts that had nonexistent part numbers, part numbers that were made up from whole cloth by committee staff. All of those sellers that sent those parts with nonexistent numbers were in China.

Now, I am going to go through very quickly a presentation of how one of these counterfeit parts made its way through the defense supply chain. The SH-60B is a Navy helicopter that conducts anti-submarine and anti-surface warfare surveillance and targeting support. The SH-60B deploys on Navy cruisers, destroyers, and frigates and has a forward-looking infrared, or a FLIR system, which provides night vision capability. The FLIR also contains a laser used for targeting the SH-60B's Hellfire missiles.

On September 8th, 2011, the Raytheon Company sent a letter to the U.S. Naval Supply Systems Command alerting the Navy that electronic parts suspected to be counterfeit had been installed on three electromagnetic interference filters installed on FLIR units delivered by Raytheon. Raytheon only became aware of the suspect counterfeit, by the way, after being alerted by our committee's investigation. According to the Navy, the failure of an electromagnetic interference filter could cause the FLIR to fail. The Navy also told the committee that an SH-60B could not conduct surface warfare missions involving Hellfire missiles without a reliable, functioning FLIR. One of the FLIRs was sent to the USS Gridley in the Pacific fleet.

So how did a suspect counterfeit part end up in a night vision and targeting system intended for a Navy helicopter in the Pacific fleet? These filters were sold to Raytheon by a company called Texas Spectrum Electronics. And this is the map we are showing you about the path of these counterfeit parts. That is a defense subcontractor in Texas. Those three FLIR's contain transistors that Texas Spectrum bought in 2010 from a company called Technology Conservation Group, or TCG. TCG, it turns out, is both an electronics recycling company and an electronics distributor. The transistors at issue were mixed in among 72 pounds of miscellaneous excess inventory that a Massachusetts company called Thomson Broadcast sent to TCG as, quote, e-scrap. According to TCG, the parts arrived in what appeared to be the original packaging. So TCG sold the transistors as new and unused parts.

Now, where did Thomson Broadcasting get the parts? They bought them from a company called E-Warehouse in California. And E-Warehouse? They bought them from Pivotal Electronics, an electronics distributor in the UK. We asked Pivotal where they bought them and their answer was Huajie Electronics Limited in Shenzhen, China.

The C-27J is a military aircraft used for tactical support and to support combat operations. The U.S. Air Force has ordered 38 C-27Js, 11 of which have been delivered. Two C-27Js are currently deployed now in Afghanistan. The C-27J is equipped with display units that provide the pilot with information on the health of the airplane, including engine status, fuel use, location, and warning messages. The display units are manufactured by L-3 Display Systems, a division of L-3 Communications, and they are manufactured for Alenia Aeronautica. Alenia is a subcontractor to L-3 Inte-

grated Systems, another division of L-3 Communications and the military's prime contractor for the C-27J.

In November 2010, after a part failed on a fielded aircraft, an internal testing L-3 Display Systems discovered that a memory chip used on its display unit was counterfeit. L-3 Display Systems had already installed the parts on more than 500 of its display units, including those intended for the C-27J, as well as the Air Force's C-130J and C-17 aircraft and the CH-46 used by the Marines. Failure of the memory chip could cause a display unit to show a degraded image, lose data, or even go blank altogether. But L-3 Integrated Systems, the prime contractor to the Air Force, did not notify its customer, the Air Force, that the C-27Js were affected by the part until September of 2011, nearly a year after it had been discovered.

Where did these counterfeit chips come from? The supply chain is somewhat shorter in this case, but it started off in the same place. L-3 Display Systems bought the parts from Global IC Trading Group, an electronics distributor in California, which in turn bought the chips from Hong Dark Electronic Trade, a company in Shenzhen, China.

That is not the end of it. In total the committee discovered that Hong Dark supplied more than 28,000 electronic parts to divisions within L-3 Communications, and at least 14,000 of those parts have already been identified as suspect counterfeit. Neither the committee nor L-3 Communications knows whether the remaining 14,000 parts are authentic, and the company has not yet identified what military systems they might be in.

Another example. The P-8A Poseidon is a Boeing 737 airplane modified to incorporate anti-submarine and anti-surface warfare capabilities. Three P-8A flight test aircraft currently are in test at the Naval Air Station at Patuxent River, Maryland, and the Navy intends to purchase 108 of the aircraft from Boeing.

On August 17, 2011, Boeing sent a message marked, quote, priority critical to the P-8 program office. The message said that an ice detection module installed on one of the P-8 test aircraft contained a, quote, reworked part that should not have been put on the airplane originally and should be replaced immediately. Close quote. The part at issue is critical to the functioning, in other words, of the P-8's ice detection module.

Boeing first identified a problem with the part in December 2009 when an ice detection module failed on the company's flight line. In that case, the part had literally fallen out of its socket and was found rattling around inside the module on the airplane. BAE Systems, which manufactures the ice detection system for Boeing, investigated the failure. They discovered that the part that had fallen out of the socket and dozens of other parts from the same lot were not new parts at all. Rather, they were previously used parts counterfeited to make them appear new. On closer inspection, BAE discovered that the parts had likely been sanded down and remarked. The leads on many parts were bent and marking on the parts were inconsistent. Parts that should have been virtually identical to one another were actually found to be of different sizes.

In January 2010, BAE notified Boeing of suspect counterfeit parts on a P-8, calling the counterfeit parts, quote, unacceptable

for use and recommending that they be replaced. BAE engineers believed their use created a long-term reliability risk. But it took Boeing more than a year and a half to notify the Navy or its other customers about the suspect counterfeit parts. Those notifications only came after our committee asked about them. Why it took so long for Boeing to notify its customers is something which we will discuss with Mr. Dabundo, the Program Manager for Boeing Defense and Security Systems P-8 Program Office who is a witness on our third panel.

The Navy recently wrote Boeing that, quote, the Government's position is that any counterfeit material received is nonconforming material and shall be immediately reported.

So where did the counterfeit parts come from in that case? BAE purchased around 300 of the parts from a company called Tandex Test Labs in California. Tandex bought the parts from a company called Abacus Technologies in Florida. Abacus, in turn, purchased the parts from an affiliate of A Access Electronics in Shenzhen, China, and wired payment for the parts to A Access' account at a bank in Shenzhen, China.

The three cases I just described are a drop in the bucket. There is a flood of counterfeits and it is putting our military men and women at risk and costing us a fortune. And in terms of the cost, just one example, to the Government now.

In September 2010, the Missile Defense Agency learned that mission computers for THAAD missiles contained suspect counterfeit memory devices. According to the Missile Defense Agency, if the devices had failed, the THAAD missile itself would likely have failed. The cost of that fix was nearly \$2.7 million, and who paid for it? The American taxpayer.

We must change our acquisition rules to ensure that the cost of replacing suspect counterfeit parts is paid by the contractor, not the taxpayer. No if's, no and's, no but's, and regardless of the type of contract involved.

So let us be clear, though. The risk is not created by the contractors. The risk stems from the brazen actions of the counterfeiters. Mr. Kamath of Raytheon, another one of our witnesses, told the committee that, quote, what keeps us up at night is the dynamic nature of this threat because by the time we figured out how to test for these counterfeits, they have figured out how to get around it.

Now, some have argued that even if a counterfeit is not identified right away, that a contractor's testing process will weed out counterfeit parts. If a system containing a counterfeit part passes that testing, they argue, then the counterfeit part should work just like a new part. But that is not what the manufacturers of these parts tell us, and it is also not what our military leaders tell us.

We wrote to Xilinx, a large semiconductor manufacturer, about the anomalies that BAE had identified on the counterfeit parts that were intended for ice detection modules in that P-8A. Again, the parts were counterfeits of original Xilinx devices. This is what Xilinx told us. These cases pose a significant reliability risk. Some of these could be catastrophic. Though the devices may initially function, it may be next to impossible to predict what amount of life is remaining or what damage may have been caused to the cir-

cuitry. In those cases, when DOD or a contractor in the defense industry needs a spare electronic part to fix a 10- or 20-year-old system, there is a good chance that that part may no longer be available from its original manufacturer and there may be little choice but to go to the open market to find the replacement part. In other words, the parts that we buy are still supposed to be new even if they are no longer being manufactured.

Now, too few contractors and distributors consistently file reports with the Government-Industry Data Exchange Program, the GIDEP, a DOD-run system that provides a forum for industry and Government to report suspect counterfeit parts and the suppliers who sold them. That has got to change too. Failing to report suspect counterfeits and suspect suppliers puts everybody at risk. We need to make sure our regulations require contractors who discover suspected counterfeit parts in a military system to report that discovery to the military right away.

We will hear today from three panels of witnesses. Our first panel has three witnesses, now four witnesses I believe. Mr. Brian Toohey is President of the Semiconductor Industry Association. Mr. Tom Sharpe is Vice President of SMT Corporation, an independent distributor of electronic components, as well as I believe Vice President of its affiliated test lab, Liberty Component Services. And Mr. Richard Hillman, the Managing Director, Forensic Audits and Investigative Service at the U.S. Government Accountability Office, the GAO. Mr. Hillman is accompanied by the chief scientist for the GAO, Mr. Timothy Persons.

The witness on our second panel is Lieutenant General Patrick O'Reilly. General O'Reilly is the Director of the Missile Defense Agency.

Our final panel has three witnesses: Mr. Vivek Kamath, the Vice President for Supply Chain Operations at Raytheon; Mr. Ralph DeNino, Vice President of Corporate Procurement at L-3 Communications; and Charles Dabundo, Vice President and P-8 Poseidon Program Manager for Boeing Defense, Space and Security Systems.

We appreciate the attendance of our witnesses this morning. By the way—and this is an important point—all of the companies and agencies represented here today have cooperated with the committee's investigation. We and the companies and the industry here, as well as, obviously, our troops and their families, are all on the same side of this battle. The only people who benefit from counterfeits are people who are making money off those counterfeits, and we have got to end that.

We have also got to end the attitude of the Chinese who will not cooperate with this investigation and who will not act against the counterfeiters. We wrote the Chinese Ambassador last week, invited him to send a representative to testify today, but he declined.

Again, with my thanks, Senator McCain.

STATEMENT OF SENATOR JOHN MCCAIN

Senator MCCAIN. Thank you, Mr. Chairman, and I thank the witnesses for being here.

We are talking about an issue that is a risk to national security. These counterfeit electronic parts in our supply chain results, as

we all know, in reduced reliability, availability, and frankly our ability to defend this Nation's national security interests.

As the chairman has pointed out, much of the raw material for counterfeit electronic parts is salvaged electronic waste, e-waste, shipped from the U.S. and other countries to China where old computers and other electronic products are disassembled by hand. There is an article in Business Week magazine entitled "Dangerous Fakes," which I would like to quote from. It says, much of that pollution emanates from the Chinese hinterlands. Business Week tracked counterfeit military components used in gear made by BAE Systems to traders in Shenzhen, China. The traders typically obtain supplies from recycled chip emporiums such as the Guiyu electronics market outside the City of Shantou in southeastern China. The garbage-strewn streets of Guiyu wreak of burning plastic as workers in back rooms and open yards strip chips from old PC circuit boards. The components, typically less than an inch long, are cleaned in the nearby Lianjiang River and then sold from the cramped premises of businesses such as the Jinlong Electronics Trade Center.

A sign for Jinlong Electronics advertises in Chinese that it sells, quote, military circuitry, meaning chips that are more durable than commercial components and able to function at extreme temperatures. But proprietor Lu Weilong admits that his wares are counterfeit. His employees sand off the markings on used commercial chips and relabel them as military. Everyone in Guiyu does this, he says. The dates on the chips are 100 percent fake because the products pulled off the computer boards are from the 1980s and 1990s, while customers demand products from after 2000.

The chairman has described the situation in detail, and I will not go on at length because we need to hear from the witnesses. But this is a serious issue. The Chinese Government can stop it. And if the Chinese Government does not stop it, then it continues to pose a national security risk.

There are other problems associated with that which the chairman has outlined about defense contractors are often forced to purchase parts from independent distributors or brokers who may stock or have access to obsolete parts. There is risk, which I hope the witnesses will explore a little bit, in obtaining parts in the, quote, independent market. We know that some of these people that are advertised as small business people are simply conduits with a phone and a desk for some of these parts. And the chairman outlined the various layers and places that these parts go through. We have to address that side of the issue. We all want the small business people to be able to obtain DOD contracts, but not the kind of abuse that apparently also is practiced here.

I want to thank you, Mr. Chairman, and the staff for their many hours of long, hard work. And I look forward to hearing from the witnesses. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator McCain.

Let us start with Mr. Sharpe. Ordinarily we probably would call on the GAO witness first, but I think today we are going to start with the problem and kind of a very vivid description of the problem, and then, Mr. Hillman, you can give us the GAO investigation

here that you undertook. So we are going to start, though, with Mr. Sharpe.

STATEMENT OF THOMAS R. SHARPE, VICE PRESIDENT, SMT CORPORATION AND LIBERTY COMPONENT SERVICES

Mr. SHARPE. Mr. Chairman, Senator McCain, and members of this committee, first I want to thank you for allowing me to come in and provide this testimony.

The issues with counterfeit parts in the Department of Defense is a big problem, obviously, and it is a big focus of our job at SMT Corporation. My company's job is to authenticate, source, and supply parts to the defense and aerospace industry. We take this quite seriously.

And I will explain to you what exactly I saw while I was in the City of Shenzhen and then into the City of Shantou, as well as some of the counterfeits that we are seeing out there today.

In July 2008, I had an opportunity, while traveling into the City of Hong Kong on business, to go into the nearby City of Shenzhen. And the reason why I wanted to go in was to visit the marketplace that has been mentioned here. The photos are up there on the screen. I had an interpreter go with me. We walked through the marketplace for the day. And while I was touring the marketplace, the interpreter told me that the marketplace district was the largest in the world of its kind, that 30 to 40 percent of all parts sold here were counterfeit, that many of the booths that we passed were owned by counterfeiters who owned off-site locations that actually did the counterfeiting and brought the product into the marketplace to sell, that the local brokers and manufacturers shop here openly to receive the 70 percent cost savings on buying parts that are counterfeit as opposed to buying brand new parts, knowing full well that the fall-out on these parts is up to 15 percent will not work DOA.

Products sold to brokers outside of China are represented to be new and unused at the time that they are sold, in quotes, into the United States and elsewhere.

And also, that most of the component counterfeiting was performed in the nearby City of Shantou. Now, I had never heard of Shantou prior to going to Shenzhen. So this was new to me.

The next morning, we traveled to Shantou. We spent the day touring this area, and we visited select businesses that were known to the driver that was with us. While there, I witnessed e-scrap piled outside of buildings throughout large areas of the town, throughout the outskirts of the town, used electronic parts being washed in a river, and laid on the riverbank to dry, nylon sacks with harvested components being dumped onto sidewalks and sorted by women and children, laid out there for the monsoon rains of July to wash them naturally, cardboard and plastic bins filled with expensive brand name components and harvested from scrap printed circuit boards ready for processing. The actual counterfeiting process of electronic components actually taking place while I was there within some of the buildings. A wide variety of counterfeit parts for sale within the counterfeiting facility sales areas. So materials that come from most manufacturers that we know of for sale. And overall, a huge infrastructure of similar or supporting

businesses in and around Shantou for harvesting components from e-scrap and processing into counterfeit electronic parts.

It is interesting to note that counterfeiting performed in Shantou, from speaking to the people there, was not regarded as IP theft or wrong in any way whatsoever. It was seen more as a positive green initiative for the repurposing and reuse of perfectly good used product.

In the past several years, SMT has identified and documented several new counterfeit processes and threats specifically designed to evade the current inspection processes known to be in use by our industry at the time. These include a new surface recoating material that is immune to acetone surface-permanency tests that has a surface that looks just like the manufacturer's top coat. SMT released this to DOD and prime contractors in August of 2009. A process to remove manufacturer part markings without requiring surface recoatings. We released this to DOD and primes in June of 2011. And a process to remove and recondition the top surfaces of ceramic components which was released just yesterday to DOD, prime contractors, and others.

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 counterfeit techniques are already beyond the in-house capabilities of most open-market suppliers.

Over the last several years, the defense and aerospace industry has made steady progress in laying the foundational groundwork for an effective counterfeit avoidance plan. We hope to begin to see the fruits of this labor in 2012.

And lastly, I personally believe that the work of this committee is playing a significant role in the industry transformation needed to effectively mitigate the counterfeit threat within the Department of Defense.

Thank you.

[The prepared statement of Mr. Sharpe follows:]

Chairman LEVIN. Thank you very much, Mr. Sharpe. And your entire statement, if you did not give it, will be made part of the record, and that would be true with all the statements of all of our witnesses because we know in some cases they are reducing the length of that statement for time purposes.

Mr. Hillman?

STATEMENT OF RICHARD J. HILLMAN, MANAGING DIRECTOR, FORENSIC AUDITS AND INVESTIGATIVE SERVICE, GOVERNMENT ACCOUNTABILITY OFFICE; ACCOMPANIED BY DR. TIMOTHY PERSONS, CHIEF SCIENTIST, CENTER FOR SCIENCE, TECHNOLOGY, AND ENGINEERING, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. HILLMAN. Chairman Levin, Ranking Member McCain, and members of the committee, thank you for the opportunity to discuss the preliminary observations of our ongoing investigation into the availability of counterfeit parts on Internet trading platforms.

Counterfeit parts have the potential to seriously disrupt the Department of Defense supply chain, affect the integrity of weapons

systems, and ultimately endanger the safety of our military personnel.

This committee cited concerns about the availability of counterfeit parts on Internet platforms and asked us to purchase certain electronic parts and have their authenticity tested. I would like to briefly summarize how we are conducting this ongoing investigation and our results to date.

In conducting this work, we created a fictitious company to gain access to Internet platforms that sell military-grade electronic parts. Our company included a fictitious owner and employees, mailing and e-mailing addresses, a website, and a listing on the central contractor registration. We attempted to purchase membership to three Internet platforms that were of interest to this committee and were granted membership to two platforms.

We then requested quotes from vendors on both platforms to purchase a total of 13 parts from a list of parts this committee provided that fell into one of three categories: one, authentic part numbers for obsolete and rare parts; two, authentic part numbers with post-production date codes or date codes after the last date the part was manufactured; and three, bogus part numbers.

We independently verified with the Defense Logistics Agency that the authentic part numbers were used for military applications. We also confirmed with DLA and selected part manufacturers that the bogus part numbers were not associated with actual parts. We requested parts from vendors that were new in original packaging, not refurbished, and not with mixed date codes. We selected the first vendor amongst those offering the lowest prices that provided enough information such as name, addresses, and payment method to make a purchase. We then contracted with SMT Corporation for component authentication analyses of the parts that we received. We are not disclosing the names of the Internet trading platforms we are using and we altered all part numbers in this testimony due to the ongoing nature of our investigation.

Regarding our preliminary results, as shown in figure 1 on page 4 of my prepared statement, as of today we have purchased 13 parts, and none of the seven parts we have complete test results for are authentic. Specifically, according to SMT Corp., all three parts tested, after we requested legitimate but rare or obsolete parts, failed at least three of seven authentication analyses and were suspected counterfeits. These parts included two voltage regulators and one operational amplifier, the failure of which could pose risk to the functioning of the electronic systems where the parts reside.

SMT Corp. also made the same determination for another operational amplifier we received after requesting a legitimate part number with a post-production date code. In this instance, the part failed four of seven authentication analyses and the vendor also misrepresented the part as 9 years newer than the date it was last produced.

In addition, we received three bogus parts after submitting orders using invalid part numbers. Because no legitimate parts in this final category exist, we did not send them for authentication testing.

We are also awaiting testing results on two additional parts and have not yet received another four purchases. We will report the results for these and additional parts we plan to purchase in a future product.

While we sent requests to both domestic and international companies, all of the parts we have purchased and received to date were provided by vendors in China. More specifically, all four of the parts that SMT Corp. tested were suspected counterfeits. The parts were subject to a component authentication analysis which included visual, chemical, x-ray, and microscopic testing. Figures 2 and 3 on pages 6 and 10 of my prepared statement provide photos and detailed test results for each part. Overall, each was a suspect counterfeit because the results of the tests indicated that the parts were likely used parts that were harvested from older equipment and then altered to appear as new.

For example, SMT Corp. found that some parts were found to have scratches similar to suspect counterfeit devices that had been remarked and confirmed by both visual inspection and scanning electronic microscopic analysis. Tooling marks were also found on the bottom of some components suggesting the components were pulled from a working environment. Further testing between the top and bottom of leads revealed inconsistencies in chemical composition, leading SMT Corp. to conclude that the leads were extended with the intention to deceive. Microscopic inspection also revealed that different revision numbers of the die and differences in various die markings were found in some parts even though the samples were advertised to be from the same part number and production date. Commonly components manufactured with the same date and lot code have the same die revisions.

Finally, the manufacturer of certain parts confirmed their end-of-life designation leading SMT Corp. to conclude that certain parts were misrepresented as being newer than the actual parts could possibly be.

As previously stated, as of today, we have also received three bogus parts after submitting requests using invalid part numbers. The fact that vendors fulfilled our requests indicate that they were willing to sell parts stamped with nonexistent part numbers essentially taking money in exchange for bogus parts. Figure 4 on page 12 of my prepared statement provides photos of the fictitious parts we received to date.

In conclusion, preliminary observations from our ongoing investigation indicate that counterfeit electronic parts can be found on Internet purchasing platforms.

I will be pleased to report to you the full results of our work once our investigation is complete.

I would also like to extend my appreciation to the entire investigation team for their dedication and commitment in delivering this interim report. With the combined assistance of investigators, analysts, and methodologists, we are pleased to provide these investigative services to the Congress.

Chairman Levin and Ranking Member McCain and members of the committee, this concludes my prepared remarks and I would be happy to respond to any questions you may have.

[The prepared statement of Mr. Hillman follows:]

Chairman LEVIN. Thank you so much, Mr. Hillman, for your investigation here and for all the other great work that GAO does. Mr. Toohey?

**STATEMENT OF BRIAN C. TOOHEY, PRESIDENT,
SEMICONDUCTOR INDUSTRY ASSOCIATION**

Mr. TOOHEY. Chairman Levin, Ranking Member McCain, and members of the committee, I greatly appreciate the opportunity to testify today to aid in your investigation into counterfeit electronic parts in the Department of Defense supply chain and about the dangers that counterfeit semiconductors pose to U.S. national security and public safety.

The issue is of more and more importance as semiconductors are key components to an increasing number of mission-critical civilian applications such as lifesaving medical devices, automotive safety systems, airplanes, but even more alarmingly, counterfeit semiconductors have infiltrated the tools, systems, and communications equipment that our military is using today.

By way of brief background, a semiconductor is the foundation or brains of any electronic device. The popular terms, “microelectronics,” “integrated circuits,” and “computer chips,” are synonymous with semiconductors.

Our industry is America’s largest exporter, and semiconductor innovations form the foundation for America’s \$1.1 trillion technology industry that supports a workforce of nearly 6 million. The semiconductor industry is a great American innovation story, and our companies still lead the world in the rapid pace of innovation and global market share. We consider our industry a model for the innovation economy of the future, and our companies still do the vast majority of advance design and manufacturing here in the United States and sell nearly 85 percent of our products internationally.

First, a note on how legitimate semiconductors are manufactured versus counterfeits. Our members, which include the largest U.S. headquartered semiconductor companies, invest billions of dollars in state-of-the-art facilities in order to manufacture semiconductors in ultra- clean rooms. The highly sensitive chips are then tested to ensure they function to exacting specifications and standards. In the case of military-grade chips, these specific semiconductors are designed and tested to withstand intense temperature and movement variables to meet the performance standards necessary for combat and military situations.

In contrast, as the chairman and ranking member noted, counterfeiters abroad rummage through piles of e-waste—in some instances, this includes old computers and circuit boards from the 1980s and 1990s—and use crude techniques like surface sanding, acid washes, and open flames to conceal the true origin and purpose of the chip. These chips, already weakened from their original state and at great risk of failure, are then relabeled sometimes as military-grade using digital printing and laser etching and packaged for sale to international brokers. Recently counterfeiters have begun acquiring more sophisticated equipment and advanced labeling techniques making it increasingly difficult to identify fake semiconductors.

Our members have also found factories that manufacture blank chips on which counterfeit markings are added later in a made-to-order fashion even if the chip's functionality does not match the order specifications.

As a result, more and more counterfeit chips make it through our borders into a wide range of products. Given the high failure risk, this places our citizens and our military personnel in unreasonable peril. A counterfeit semiconductor is a ticking time bomb.

A prime example of counterfeits making their way into the military supply chain is the VisionTech case which recently resulted in the first felony conviction for counterfeit IC trafficking. The counterfeit semiconductor sold by VisionTech included chips destined for naval vessel and land-based identification friend or foe systems, memory chips for the Harm Testing System used by F-16's to track hostile radar systems, chips intended for an application the U.S. Navy Cobra Judy Replacement Program, and chips that control the braking system in high-speed trains. This is a very real and very alarming problem. Americans' lives are at risk every time a counterfeit semiconductor makes its way into one of these highly complex and mission-critical systems.

Experts have estimated that as many as 15 percent of all spare and replacement parts purchased by the Pentagon are counterfeit.

Overall, as the chairman noted, we estimate that counterfeiting costs U.S.-based semiconductor companies more than \$7.5 billion per year, which translates into nearly 11,000 lost American jobs.

Our industry takes this threat very seriously and we are committed to doing everything within our power to stop counterfeits from entering the U.S. and being used in our military and civilian supply chains. We believe this is a multi-faceted problem that will require a multi-pronged approach with a coordinated effort from Government and industry.

While I understand this is primarily an investigative hearing, I would like to offer five steps that we view as critical to combating this clear and present danger.

First, we should continue our successful partnerships with DOD and DOJ and the semiconductor industry and others to develop a more robust and effective authentication system.

Second, DOD should implement strengthened procurement procedures for mission-critical components, including purchasing exclusively from authorized distributors or DOD-certified resellers.

Third, we should strengthen our ability, the industry's ability, to partner with customs officials to stop counterfeit semiconductors at the border. In 2008, CBP stopped the successful practice of sharing key information regarding suspect counterfeit chips with manufacturers and began redacting or crossing out critical manufacturing codes making it virtually impossible to determine if the suspect chips are authentic or counterfeit. Returning to the pre-2008 practice would significantly improve our Nation's ability to stop counterfeits at our border.

Fourth, we should continue to aggressively prosecute counterfeit traffickers.

And finally, we should leverage every trade tool at our disposal to encourage stronger enforcement of intellectual property rights, especially trademarks, internationally.

Thank you for this opportunity to testify, and I would welcome any questions.

[The prepared statement of Mr. Toohey follows:]

Chairman LEVIN. Thank you so much, Mr. Toohey. Let us try a 7-minute first round. If we need a second round, we will have one.

Let me start first with you, Mr. Hillman. This action or activity of the GAO to try to test this market produced some really stunning results. The idea that you can give any part number, make up a part number, and you can find somebody who will act as though they are responding to that order on the Internet is an amazing result. And they are all coming from China so far. It fits with what our investigation shows, that China is the source of the counterfeit.

Now, when you set out to buy parts, when the GAO set out to buy parts, you did not specifically aim at any particular country. Right? You went on a global marketplace, the Internet.

Mr. HILLMAN. That is correct. We did not target any specific region such as Asia, Europe, or North America. What we looked at specifically was individual part numbers requested by this committee. We added those numbers on the Internet trading platforms. Vendors then offered quotations for us and we selected quotations that were amongst the lowest prices that had available information to allow us to make the purchase. It just so happens that the results of our tests show that for the 13 purchases that we have made to date, 12 have come from Shenzhen, China and one from Beijing.

Chairman LEVIN. Now, how much time elapsed between the time that the GAO's fake company that you created requested the parts with these bogus part number and the time that you actually received the bogus part? Is that a matter of days, months, weeks?

Mr. HILLMAN. It is a matter of days, Senator. We made purchases and waited for approximately a 24-hour period, sometimes a little longer, to obtain quotations of individuals willing to supply us these part numbers. Upon receiving information from the lowest price bidders on available information with which to make the payment for these purchases, it could have taken from several days to a little over a week for the purchases to actually arrive.

Chairman LEVIN. Now, how did you pay for the parts?

Mr. HILLMAN. We contracted with the vendors through Western Union services to supply the funds for the purchases.

Chairman LEVIN. They were wire transfers?

Mr. HILLMAN. Wire transfers.

Chairman LEVIN. And did you find that there were any operators/counterfeiters that were working more than one company? In other words, did one person, as far as you can say or tell, have more than one company? Was there like a boiler room anywhere?

Mr. HILLMAN. It appeared from the results of our discussions over the Internet that there were individuals with similar names that were supporting multiple vendors that were willing to supply us these parts.

Chairman LEVIN. Mr. Sharpe, you do independent testing—right—at one of your companies that you are affiliated with.

Mr. SHARPE. Yes, sir, we do.

Chairman LEVIN. And when you did the testing here on the parts I guess with GAO, did you know who you were testing that for—those parts for?

Mr. SHARPE. We only knew that we were testing them on behalf of GAO.

Chairman LEVIN. You did not know that it was for this committee, though.

Mr. SHARPE. No, sir.

Chairman LEVIN. And you sell parts too.

Mr. SHARPE. The biggest part of our business.

Chairman LEVIN. And can you compare the way you saw parts being handled in China with the way you handle parts that you sell?

Mr. SHARPE. There are really no words to describe it. Watching parts literally being washed in rivers, dropped on riverbanks, dumped into cardboard boxes. There was nothing done whatsoever to protect the component at any phase of what we saw going on over there. If anything, the entire process would serve to ruin the component. The processes that are followed by SMT begin with strict ESD controlled rooms and areas, clothing by our employees. The areas are de-humidified, kept between a relative humidity level of between 25 percent and 45 percent not only where we work on them but where we store them. All packaging is ESD compliant and tested. It is a completely different world.

Chairman LEVIN. Now, what impact does the way electronic parts are handled have on performance and reliability?

Mr. SHARPE. Well, in the case of the parts that we saw in Shantou that were either on the sidewalks or in the river, for instance, one of the biggest enemies of an electronic component is moisture. So there is absolutely no safeguards whatsoever to stop moisture ingress into the components. Moisture ingress into the components leads to delamination and die voiding, things that begin to become the beginning of the end. When we look at parts at SMT through an acoustical microscope, we can see the evidence of that moisture ingress, and on parts that are counterfeit, that is a very prevalent thing for us to see.

Chairman LEVIN. In other words, the lifespan of the part is dramatically affected by the way in which they are handled?

Mr. SHARPE. Absolutely.

Chairman LEVIN. When you were there, did there appear to be any steps taken by the Chinese Government to stop the sale and the marketing of these parts? I mean, the Chinese tell us they act against counterfeiters. That is what they tell us. We got a statement today from the Chinese or they issued a statement to the press that they are always taking action against counterfeiters. Did you see any evidence when you were there of any Chinese Government action against what was openly being sold as counterfeits?

Mr. SHARPE. No, I did not. When I was in the Shenzhen marketplace, the parts that were there—the interpreter was reading to me cards that were inside of the showcases where it was describing what level of refurbishment had taken place as they were regarded. This was all right out in the open. When we got into the City of Shantou, the entire business purposes of everything that we saw there was very obviously to harvest components from e-scrap and

go through complete refurbishment right there in the open. There was nothing that was hidden.

Chairman LEVIN. Thank you.

Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman. I thank the witnesses. Mr. Hillman, how serious do you think this problem is?

Mr. HILLMAN. The results of our work to date is based off of a non-generalizable sample of parts that we were requested to purchase. Therefore, we are unable to discuss the prevalence of this activity.

Senator MCCAIN. But it is a serious problem, not so serious, a waste of your time?

Mr. HILLMAN. No, Senator, not at all. We consider the problem itself to be a very serious one, possibly affecting the lives of our military personnel and the capabilities of the systems that they utilize.

Senator MCCAIN. Mr. Toohey, do you agree with that assessment?

Mr. TOOHEY. Yes, absolutely. This is a very, very serious and growing problem, Senator.

Senator MCCAIN. So, Mr. Toohey, what do we need to do about it?

Mr. TOOHEY. Well, Senator, I outlined a number of steps briefly that I think we ought to continue and expand. Certainly working to strengthen the authentication procedures, and we are working in a cooperative way with DOD officials to do this. I think ensuring that that process continues and is strengthened makes sense.

Ensuring that the procurement system is strengthened so that for these mission-critical components, they are only purchased through authorized distributors or DOD-certified resellers. That would be a critical—

Senator MCCAIN. We are doing that now. People are getting certified to be a reseller, but obviously there is very little scrutiny or examination of the people who are getting this certification. Would you agree, Mr. Hillman?

Mr. HILLMAN. There are certainly on the Internet purchasing platforms that we observed a wide variety of attesting or lack thereof associated with the parts that are being made available for sale.

Senator MCCAIN. Mr. Sharpe, we have been told by a number of independent distributors and testing laboratories that more often than not, semiconductor manufacturers refuse to assist them in determining the authenticity of an electronic part. Has that been your experience?

Mr. SHARPE. We have seen it both ways, sir. We generally try to reach out to the component manufacturers to get information on die markings, information on the front markings, things like that on obsolete parts so we do not have data on—

Senator MCCAIN. Sometimes you do not get the cooperation of the manufacturer.

Mr. SHARPE. Sometimes we do not.

Senator MCCAIN. Mr. Toohey, what have you got to say about that?

Mr. TOOHEY. Well, Senator, our companies work very closely with Government officials. As a matter of fact, one of the steps that I—

Senator MCCAIN. So you do not agree with Mr. Sharpe's assessment.

Mr. TOOHEY. Senator, we work very closely with Government officials and cooperatively work—

Senator MCCAIN. Do you agree or disagree with Mr. Sharpe's assessment?

Mr. TOOHEY. Senator, I think our industry has an outstanding record of working cooperatively with both private sector and Government officials to authenticate chips. As a matter, one of the steps that I recommended was changing a customs policy to allow us to cooperate because in many cases at the border, only the manufacturer can authenticate the chip, and right now, given the policy that is in place, we are not allowed to do that. So we do cooperate and we would like to strengthen that cooperation, Senator.

Senator MCCAIN. Well, we would certainly like to help you in that effort.

Mr. Hillman, have you been involved in this issue at all, that some of the laboratories and testing distributors are not—people are not given assistance by the semiconductor manufacturers?

Mr. HILLMAN. Results of our investigation to date have not led us into that area.

Senator MCCAIN. Which means to you in terms of your investigation?

Mr. HILLMAN. In terms of our investigation, we have shown that it is possible to purchase counterfeit parts on Internet purchasing platforms. We have not, as part of this ongoing work, delved into the potential issues that exist currently within those platforms or across the supply chain but hope to be doing additional work as part of the continuation of our work.

Senator MCCAIN. Mr. Toohey, Mr. Sharpe and others have given us information that the manufacturers many times refuse to assist. I suggest you get on that, and I suggest you get on it quickly. We will be glad to consider legislative changes but if manufacturers are not cooperating, it makes the problem even worse. So I hope you will look at these allegations, find out if they are true or not true, and if they are true, get to work on it.

Mr. TOOHEY. We will absolutely do that.

Senator MCCAIN. Mr. Sharpe, how long has this been going on in your view?

Mr. SHARPE. I have been in the industry for 15 years and I have spoken to folks who have been around the industry since the 1960's and they said they have seen counterfeits going back to the 1960's.

Senator MCCAIN. Is it growing worse, better, or the same?

Mr. SHARPE. It is growing much worse, and the reason why I call it much worse is that the counterfeiters are changing their processes to get in front of the processes that they know that we are currently doing to detect their processes. So the process is evolving and it is getting harder to detect.

Senator MCCAIN. So really it would be extremely difficult to stop this unless we get the active cooperation of the Chinese Government.

Mr. SHARPE. I would agree with that, yes, sir.

Senator MCCAIN. And there is very little doubt in your mind that the Chinese Government is aware that this significant industry is taking place.

Mr. SHARPE. Absolutely no doubt.

Senator MCCAIN. Have you ever had a conversation or heard anything from the Chinese Government about this?

Mr. SHARPE. No, sir, I have not.

Senator MCCAIN. Have you, Mr. Hillman?

Mr. HILLMAN. No, sir, I have not.

Senator MCCAIN. Mr. Toohey, I am a great admirer of your association and its members and the enormous contributions that they make to America's economy, but I suggest you give this some priority so that members of this committee and the American people can be assured that there is active cooperation on your part. Okay?

Mr. TOOHEY. Yes, Senator.

Senator MCCAIN. Mr. Hillman, again I have read reports of the desk and the phone, the middle person who basically is just the pass-through, and part of it is because of our encouragement of small business people being able to be involved in DOD procurement. How serious is that part of the problem?

Mr. HILLMAN. Well, we all value the participation by small businesses. In this instance, though, on this investigation, what we have learned in several purchases that we have made is that individuals are posing to be representatives of multiple companies and are willing to supply parts to us that are not authentic where no actual part numbers exist.

Senator MCCAIN. I thank the witnesses. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator McCain.

Senator Udall.

Senator UDALL. Thank you, Mr. Chairman.

Let me first say I think the most important and sobering thing that I have heard is that this is a serious and growing problem. I would like to build on the comments and the questions the chairman and Senator McCain have asked.

And I think Senator McCain really put his finger on it here. We need a team effort. The Federal Government and industry have to work together. Mr. Toohey, I look forward to hearing the results of your increased focus in this area as you acknowledged this morning. I am not here to pick on you per se, but I do think this is something that has really gotten the attention of the committee. To my way of thinking, there are roles that the State Department and Customs and Border Patrol, component manufacturers and suppliers alike can play. It does not seem like there is one solution but it seems like there are a number of relatively simple solutions that we could provide that would, in turn, provide a screen to get at the heart of this.

If I could, let me even get into more detail. I think there is something called the Trusted Foundry Program, and it is a joint DOD-NSA program that ensures that only certified chips and microprocessors are allowed into the supply chain. But as I understand it, we do not require components to be certified through the TFP.

If I could, I would like to ask the industry experts here would there be any benefit to requiring electronic components to be certified as TFP-compliant before they are allowed into the DOD supply chain. Would a trusted supplier certification requirement not protect manufacturers and the DOD alike? And given that we are spending billions on the fake components, would the investment in such a certification program not pay for itself in a fairly short period of time? Mr. Sharpe, maybe we could start with you and Mr. Toohey in turn.

Mr. SHARPE. Senator, so I understand the question as it is posed to me, is it that I would send parts to this program to have them certified before I was to send them in to DOD?

Senator UDALL. I think that is in part what I am getting at, but we are basically taking suppliers at their word for the authenticity of the components they provide even though it seems that the suppliers cannot always say for sure where those chips come from. But we do not know how many other systems, whether they are in vehicles or part of the radio and coms efforts we put forth. Aircraft, weapons systems themselves could be at risk of failure. So it seems like we have got to go the extra mile here. Again, I am searching, as I think the committee is, for ways to get at this quickly and in a cost-effective manner.

Mr. SHARPE. Well, as far as the Trusted Foundry Program goes, as I understand it, this is a group of foundries where material can be built directly for the Government with no brokers in between. So this would be an area where an independent distributor would not have any access to, as far as I know, unless we were to ask them to do work for us. But generally, this is direct from them to you.

As far as product coming from the independent channel, we all know that due to the huge amount of obsolescence that becomes part of weapons systems, that lots and lots of material has to come from our industry, meaning independent sector.

I personally believe that the way into this to mitigate it properly is for heavy requirements on testing being done by the supplier, and I am talking about documented proof of all tests. And I will not run through the whole list, but there is an awful lot out there that can be done, including full electrical. This is now being done and required, by the way, by many of the primes that we currently deal with.

Senator UDALL. Mr. Toohey, I would welcome your comments.

Mr. TOOHEY. Senator, as you very well noted, this is a multi-pronged problem and it would a multifaceted solution. And in that regard, part of the solution is certainly continuing the work that we are doing with DOD for the authentication process and ensuring that that process works and so that manufacturers can very easily authenticate chips that are in the supply chain.

The Trusted Foundry Program also plays an important role for a relatively minor part of what the DOD procures, but I understand that process is being reevaluated as well. And so I think there are many parts of the solution that we ought to implement in order to ensure we know which chips are going into the DOD supply chains.

Senator UDALL. Could I turn to the Chinese Government? What more can we do? What should we be doing to encourage them, shall I say, to stop the flow of these fake components into the United States? I would welcome any of you on the panel to comment.

Mr. SHARPE. Since the Chinese Government is so well aware of what is going on as far as the counterfeiting in the country, it would seem to me that they could get a handle on this rather quickly if they were to make that effort to do so. Since everything is out in the open, I believe that China can put the right restrictions and penalties in place within their own country and stop an awful lot of this right at the bud quickly. So that is the way I would see it.

Senator UDALL. Mr. Toohey, do you have further thoughts?

Mr. TOOHEY. Certainly more can be done in China to stop counterfeiting and enforce intellectual property, although I would note that our association has been working with Chinese Government officials both at the state level and the provincial and local level for quite some time on this problem. For example, part of our work was the establishment of a legitimate market in Shenzhen so that there is a legitimate way in which to procure legitimate chips, and that has been established.

The Chinese Government, certainly during the special campaign implemented earlier this year, has demonstrated that when it focuses, it can have real results. Semiconductors were not part of that special campaign on intellectual property enforcement, but those industries that were involved, pharmaceuticals and others—and officials from the U.S. embassy also indicated that there was strong progress. So I think having our trade officials and our bilateral relations encouraging stronger enforcement is the right way to go, Senator.

Senator UDALL. Mr. Hillman, do you have any insights into this counterfeit market in China and the Chinese Government's role? Are they simply turning a blind eye or is there evidence of complicity?

Mr. HILLMAN. That is nothing that our investigation has uncovered to date. We will be continuing our investigation and reporting our final results later this year.

Senator UDALL. Did your investigation determine that any of our servicemembers had been injured or that there was loss of life tied to these counterfeit chips?

Mr. HILLMAN. The parts that we have purchased that were authentic fit into a variety of significant military applications. The results of our investigation to date suggests that those parts can be purchased on a counterfeit basis. We have not gone to the extent to determine whether counterfeit parts have actually been placed into those systems, therefore, whether or not lives have been endangered.

Senator UDALL. Let me end with a comment tied to your answer and my question. I think that is why this committee is so concerned. Our servicemembers face enough peril, put themselves on the line day in and day out, and if there is an unseen danger tied to the electronics on which we depend, this is a very, very serious situation.

So, again, we have got work to do. We are going to have to do it as a team, DOD, this committee, the private sector. And the Chinese Government has an important role to play here.

So thank you again for your appearance. Mr. Chairman, thank you.

Chairman LEVIN. Thank you, Senator Udall.

Senator Brown.

Senator BROWN. Thank you, Mr. Chairman.

Mr. Chairman, I just kind of had a question back to you. I want to make sure I understood what you said. So you indicated in your initial statement that we are obviously paying for product, and then we, in turn, have determined that those products are being supplied with defective materials. And then not only we are paying for the product in the first go-round, did you say also we are paying for the replacement and repair of those defective—

Chairman LEVIN. Depending on the contract. There is evidence. We will hear more about that on our second panel. But the example I gave, yes, we paid for the repair because it was a cost-plus contract, and unless you can prove intention apparently that something is intentionally counterfeit and with knowledge, then we end up paying for it. And that is something we can change.

Senator BROWN. Well, count me on the amendment that does that as a cosponsor because it only makes sense here on Capitol Hill that we would do something like that, Mr. Chairman. The fact that we are paying top dollar for a product and then, in fact, we get the product and it is filled with sometimes defective components is mind-boggling.

Chairman LEVIN. Well, we can correct it on Capitol Hill, but the problem is the contracts the Pentagon enters into, if they are cost-plus contracts, do allow and maybe require that the Pentagon pay for replacement unless you can prove that the defective part was put in knowingly by the contractor.

Senator BROWN. We should not have to make that proof. It should be a given that everything that we pay for is of the highest quality.

Chairman LEVIN. That is what our amendment will do.

Senator BROWN. Thank you, Mr. Chairman.

Also, Mr. Hillman, you said the middleman—you described it when you went out and did your research and kind of your sting operation. You provided them with numbers that were not real, and in fact, it came back with some fictitious product. Is that a fair statement?

Mr. HILLMAN. Yes, Senator.

Senator BROWN. What has been done to those people? Have they been let go? Are you not doing business with them anymore? I mean, what does it take to stop doing business with people like this here in Washington?

Mr. HILLMAN. We will be referring the results of our investigation to the Inspector General of the Department of Defense for further review, potential action.

Senator BROWN. With a recommendation, I hope, to terminate any and all contact and recoup any and all payments. Is that a fair statement?

Mr. HILLMAN. Yes, Senator.

Senator BROWN. Thank you.

I mean, this is another reason to not only manufacture in America but, you know, buy American so we know what we are getting, we know where the supply chain is going. To rely on entities like you have described, Mr. Sharpe, through your investigation—how did you actually get into the country to do that when we had representatives that were denied? Did you go over like, oh, golly, gee, I want to see what they are doing and maybe have an opportunity to buy some more product? How did that work? I am just kind of curious.

Mr. SHARPE. We do not buy product over there, Senator. The trip began as a business trip to visit a U.S.-based customer in Hong Kong that was then to turn into a vacation in Beijing. And it was 2 weeks before the Olympics in 2008. The borders were very porous. And when I got into Shenzhen, not knowing that I was going to then be traveling the next day to Shantou, it was nothing more than paying some money to the driver and hiring someone to take me out there. There seemed to be no issues whatsoever. No one really questioned me. There were just areas where I was told that I could not take photographs.

Senator BROWN. And I share Chairman Levin and Ranking Member McCain's concerns. From 2005 to 2008, counterfeit incidents have almost tripled possibly as a result of, quite frankly, the manufacturers failing to adhere to the testing requirements. Do you think that is the reason?

Mr. SHARPE. Yes, that is a reason, sir. I agree with that.

Senator BROWN. And a lot of the recommendations that you have made and I think, Mr. Toohey, you are making you feel it would change that?

Mr. TOOHEY. Yes, Senator. We believe it would significantly help to strengthen the authentication procedures, to strengthen the procurement policies, to ensure that we are stopping these at our border and ensuring we are using all tools available, and to leverage our law enforcement community as well to continue to aggressively prosecute these—

Senator BROWN. Mr. Toohey, are you giving recommendations to the chairman and ranking member on what you need in terms of legislation to get that done? Are you doing that?

Mr. TOOHEY. Senator, we would be happy to follow up with a more detailed set of proposals.

Senator BROWN. Yes. I would like to be included in that because, quite frankly, I find this—this is unbelievable. So I want to really thank you both for pursuing this. It kind of came out of left field and another thing we have to worry about.

I guess take a shot, any one of you. What is your thought about the likelihood that everything that has been done is malicious in fact, not just out there to make money, but malicious in terms of trying to deliberately breach our DOD equipment and try to gain some type of tactical advantage? Is there anything like that going on, or is it just really, hey, you know, they are just going out to get money, you know, just to make money? That is my first question.

My second question is, so why do we not go to the source? Is there a different way we can process a lot of this waste? We can

do it internally. Do we not have the ability to do this stuff within our country? And take that supply chain and just cut it off at its head. I mean, it makes no sense to me that we are sending this stuff over there in barges and then they are able to do what they are doing. It is clear from the pictures. I mean, did anyone send over this investigation to the embassy here—you know, the Chinese ambassador and say, hey, sir, can you explain what is going on here?

So I guess there are a couple of questions in there. Do you think there is any malicious intent to deliberately breach our DOD equipment, number one? And number two, is there a different way we can do it to stop the supply chain from going over in the first place? I cannot believe America, one of the greatest countries in the world and one of the most innovative countries in the world obviously, cannot do more with this waste.

So anyone can take a shot at that. Dr. Persons, you have been silent. Why do not take a shot at one of those?

Dr. PERSONS. Thank you, Senator.

In terms of understanding any malicious intent, sir, that was out of scope of our particular investigation which is still going on. In terms of dealing with those things, GAO has done reports on e-waste and recycling and so on, just that general issue and the legitimacy thereof. I believe the core issue or one of the core issues has to do with just who wants that to happen in their proverbial backyard and who pays for that and that sort of thing.

Senator BROWN. Well, it seems like the American taxpayers are paying indirectly by the fact that we are double paying for equipment that we should be getting that should be top of the line in the first off. And then we are paying by the potential breaches in our security in the way that we are providing equipment to our men and women that are serving. So my time is up. I appreciate your holding this, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Brown.

Senator Manchin.

Senator MANCHIN. Thank you, Mr. Chairman.

This will probably be to Mr. Sharpe or Mr. Toohey. Do you know of any Chinese company or the government agency that makes any product that they have researched, they have designed it, they have done the research and brought it to market that no other country does right now or no other company outside of China? Do you know of anything unique that they have brought to market in your realm of business?

Mr. SHARPE. I am not aware of any, Senator.

Mr. TOOHEY. Senator, there are a number of domestic Chinese semiconductor manufacturers and design companies. There is a legitimate foundry, a very—

Senator MANCHIN. I am saying do you know of anything they have, let us say, invented?

Mr. TOOHEY. Senator, there are some specific applications, semiconductors, that have been designed in China. There are a couple of good foundries that manufacture quality products, some for American companies even, in China. And so while it is very small—the domestic industry is extremely small—in world standards there are examples of research. I should add that the Chinese

Government has singled out the semiconductor industry in their 5-year plan as one that they want to build because they know what it means to our country. And so they are putting a lot of investment into developing a domestic semiconductor—

Senator MANCHIN. How many of your members have a presence in China?

Mr. TOOHEY. Several of our members, Senator. Several of our large members have a presence in China.

Senator MANCHIN. So it would be right for us to understand that you would be concerned about their protection, also an ability to do business there.

Mr. TOOHEY. Yes.

Senator MANCHIN. Are there because of price?

Mr. TOOHEY. Senator, it is a global market. China is actually the largest market for semiconductors globally. Not a lot is produced by local companies I mentioned, but they are actually the largest market and that drives many of our international global companies to have presence in China.

Senator MANCHIN. Are we still purchasing these products as a Government? To Mr. Hillman or Dr. Persons, are we still as the United States Government for our Department of Defense purchasing, doing business with these people?

Mr. HILLMAN. The parts that we have been purchasing as a part of this ongoing investigation are rare, hard-to-find, and obsolete parts that are still being utilized in major weapons systems. The Internet purchasing platforms demonstrate that contractors or subcontractors that are in need of these hard-to-find, rare, obsolete parts have an outlet through these purchasing platforms to acquire these parts. The concern, though, is that the intent to deceive certainly exists and—

Senator MANCHIN. Are we still purchasing, sir? I just asked a very simple question. Is the U.S. Government still purchasing from these counterfeiters who are putting out inferior products?

Mr. HILLMAN. The Internet trading platforms have 40 million to 60 million line items and parts that are purchased on a regular basis. Yes, sir, Senator.

Senator MANCHIN. So we are still doing business with the people that we know that are making inferior products that could affect our service people.

Mr. HILLMAN. Those businesses certainly continue to be available to—

Senator MANCHIN. Mr. Sharpe, if I may ask you. Your company basically does this after-market. Right?

Mr. SHARPE. Yes, sir, we do.

Senator MANCHIN. Do you know of any companies other than yourself or other companies like yourself that are unable to produce the quality products that are needed for our service people?

Mr. SHARPE. Well, we do not make products over at SMT, but we produce products that have been inspected properly.

Senator MANCHIN. Right.

Mr. SHARPE. Yes. There are other companies in the United States like ours.

Senator MANCHIN. So we would not have to go to China to these counterfeiters if we did not want to because of price.

Mr. SHARPE. We absolutely do not need to go to China.

Senator MANCHIN. Okay.

Who writes the specs? Mr. Hillman, who in the world in our Government writes these specs for these products and does not follow up? The specifications for what we are going to purchase is not written stringent enough that if you basically do not meet those specifics, then you are banned, like in any other purchasing, from State purchasing or Federal purchasing. You should be banned if you are found to be, you know, neglective of doing what was supposed to be done. Who would want to answer that?

Dr. PERSONS. I will answer that, sir. In the context of our work, there is a DOD specification. It is called MIL-PRF-38535J in terms of the context of the tests that we ran on the various parts that we acquired in our undercover operation. There are specs being written—

Senator MANCHIN. Who writes the specs? I mean, does the Government? I am sure we have spec writers. Right?

Dr. PERSONS. Yes, sir.

Senator MANCHIN. From all different agencies, Department of Defense agencies?

Dr. PERSONS. In this case, this was a Department of Defense specification. So I am sure there are others.

Senator MANCHIN. Who follows up on that? We have got you all in here to basically check to see if this type of a scam was going on. We found out it was not only going on, it was flourishing. It still is flourishing as we are here at this committee hearing right now. It seems to me you get back to the source. If we are writing the specs, who is following up? Why would you let it get that far? You could shut that down in a heartbeat.

Dr. PERSONS. Sir, I am not aware of who is supposed to follow up, but I do know the specification does exist and is written by, in this case—

Senator MANCHIN. Well, does anybody in the Department of Defense—have you brought your report to anybody in DOD?

Dr. PERSONS. Because it was preliminary, no, sir.

Senator MANCHIN. And they did not request it all. It was basically this committee that did.

Dr. PERSONS. Yes, sir.

Chairman LEVIN. If I could just interrupt for one second. This was a very specific report that we asked the GAO very recently to try to go on to the Internet and to see what parts would show up when they put in orders, and the cheapest parts that showed up from—they are all from China—turned out to be counterfeit although it had been tested. And some of the numbers that were given to them were totally fake numbers. So they have just been involved working for us very, very recently. We are going to have a third panel here where we are going to have contractors for which those questions would be very—

Senator MANCHIN. Mr. Chairman, the only thing—this is not rocket science. Basically I do not know if they have had an original idea or brought a product to market that would benefit mankind, if you will, from China. Everything from the handbags to watches to mining equipment—everything has been basically stolen by them as far as property rights and those types of things.

I just cannot figure out if we are getting bad product and we know where it is coming from, why do we not shut it down. I think that is the question that you would ask later. Why did the Department of Defense not jump in and say, listen, we are paying and getting bad products, inferior, we are buying and paying for it twice to try and get the right product, and we are putting people in harm's way, especially our military people? Why would it take us as a committee? Why would the Department of Defense not have an internal audit asking for this?

You were not asked, Mr. Hillman, by the Department of Defense at all to check this out? Did they know they were getting inferior products?

Mr. HILLMAN. We are releasing preliminary results of our ongoing investigation this morning and have not had contact with any other outside party associated with these products, other than the Defense Logistics Agency, in order to determine whether or not the parts that we were purchasing were being integrated into major weapons systems and to determine that the bogus part numbers that we were attempting to purchase were not an authentic part.

Senator MANCHIN. Thank you.

Chairman LEVIN. Thank you, Senator Manchin.

Senator Ayotte.

Senator AYOTTE. Thank you, Mr. Chairman. I wanted to follow up with what Senator Manchin said. As I understand it, Mr. Sharpe, you said in your view we do not need to go to China. Can you explain that?

Mr. SHARPE. There is an awful lot of product over in China that is certainly not counterfeit. Going to China to buy from the non-authorized sources is a sure way, as far as we can see right now, to get ourselves into trouble. There are authorized sources in China that get products directly from the authorized component manufacturers. I would not say that dealing with those folks, as long as they are selected and audited, would not be a reason why we could not buy from them. But the open market of China is definitely not a place to go.

Senator AYOTTE. I certainly appreciate that we have a need to trade and to trade with China. However, they seem to be flaunting our intellectual property laws. They, obviously, in this instance, the counterfeit products—let us just be clear. It is a matter of life and death with these products. When I see that some of these counterfeit products—if you are a Navy helicopter pilot or an Air Force C-27J pilot and you cannot trust your flight system or your night vision capability, I mean, this could be a matter of life and death, could it not, for our soldiers?

Mr. SHARPE. Yes, Senator.

Senator AYOTTE. And it seems to me that when we know that there is a particular area of China, Shenzhen, that is producing, openly producing, these counterfeit products, why would we even allow those products to come across our borders to get into our supply system.

Mr. SHARPE. It is a very good question. If it is coming from the open market, I agree.

Senator AYOTTE. In my view, I think we need to send a stronger message to China rather than trying to continue to talk when the response we get back is, oh, we are taking care of this and clearly they are openly allowing this to happen. And it is a matter of life and death for our soldiers. I hope that we will take stronger actions to cut them off.

As a follow-up, I wanted to ask—one of the concerns that I have had since I have been a member of this committee—Chairman Levin talked about cost-plus contracts and how they could expose U.S. taxpayers to the cost of replacing counterfeit or fraudulent goods. And we are basically paying both ways for this. That is one of the reasons why Senator McCain and I—certainly we have introduced legislation to minimize the use of cost-plus contracts. But, Mr. Toohey, can you tell me why should the contractors not bear the risk here within the supply chain for counterfeit products?

Mr. TOOHEY. Well, Senator, from our perspective, everything ought to be done that can be done to ensure that legitimate product is going into these products. While I am not very familiar with the details of defense contracting, it seems like a reasonable approach to expect companies and contractors to do everything they can to ensure that these products are legitimate.

Senator AYOTTE. So you would agree with me that taxpayers should not have to pay twice for the goods and obviously the important military equipment that we are paying quite a bit of money for.

Mr. TOOHEY. Certainly when measures can be done and policies that can be put in place to better ensure the authentication of these products, I would certainly agree, Senator.

Senator AYOTTE. The other issue I wanted to ask you about—you mentioned the case of VisionTech which was a prosecution in Federal court to address—aggressively prosecute the counterfeiting traffickers. And I believe you identified it as a first case of its kind. Why is that? Why are we not prosecuting more of these cases? Because if we prosecute people who are putting these products in the line and obviously know that they are trafficking in counterfeited products, that will also be a great deterrent particularly to contractors within the United States.

Mr. TOOHEY. Senator, I could not agree more. We ought to be aggressively prosecuting these criminal entities. And that is what they are. They are criminal entities that are putting the lives of our soldiers at risk.

And I should say my understanding is VisionTech is the first felony conviction for it. There are several other pending cases. But from our perspective, the work of the U.S. Attorney here for the District of Columbia and specifically the assistant U.S. Attorney, Sherri Schornstein, in this regard and really single-handedly sort of forcing these cases and these prosecutions forward has just been extraordinary. It ought to be recognized and we need to do more of it as a country.

Senator AYOTTE. I could not agree with you more. I would like to see more felony prosecutions because we are talking about life or death decisions here. And the more we aggressively prosecute these individuals, particularly if we find out that there is a contractor or a company in the United States that knows they are traffick-

ing in counterfeit goods to our military that go into important parts that they have—you know, equipment that they have to rely on, I can tell you that that will also be a way to stop them.

Mr. TOOHEY. Senator, if I could just add, we cooperated closely with the U.S. Attorney on those cases and on a number of other cases, and we stand ready to strengthen that. It needs to be a partnership to authenticate which chips are counterfeit. And we have a very strong cooperation with law enforcement officials here, and we would like to strengthen that.

Senator AYOTTE. Mr. Hillman, I believe Senator Brown asked you a question about—one of the issues that leaps to mind for me about this whole—now it seems to be a profit motive. These cases seem to be the Chinese trying to make money off of us and other countries, but primarily the Chinese are participating in this. But if it is that easy to do this, could this not also easily become a way for sabotage to be conducted on our military espionage? Is this something we should be concerned about not only as something that is undermining and putting our troops at risk with the equipment they are using, but in these contexts for our national security?

Mr. HILLMAN. There certainly is the possibility that there could be counter-motives other than financial benefits associated with the counterfeiting and harvesting of old parts put into a fashion that they appear to be new. The vendors that we have supplied these parts from appear to be more of a boiler room operation where they are willing to supply parts of unknown authenticity for the remuneration that is provided from those parts.

Senator AYOTTE. But certainly this represents a vulnerability that goes—could be far-reaching if we do not address it within our Department of Defense.

Mr. HILLMAN. I agree.

Senator AYOTTE. Thank you.

Chairman LEVIN. Thank you, Senator Ayotte.

And we will have a chance in the next few weeks, when our bill comes to the floor, to take some statutory legislative steps, which I hope we will all be able to support. At any rate, we will have that opportunity that you made reference to. So we thank you for that.

Senator AYOTTE. I appreciate your leadership.

Chairman LEVIN. Senator Collins.

Senator COLLINS. Thank you, Mr. Chairman. Mr. Chairman, let me start by thanking you and the ranking member for conducting such an in-depth investigation into such an important problem.

I would point out that this problem is not a new one. I recall back in 2004 looking into this issue of the security of the supply chain. And at that time in 2004, the Department of Defense initiated the Trusted Foundry Program, which Senator Udall referred to. This program was intended to ensure that mission-critical national defense systems have access to trusted parts and assured supplies. Under this program, DOD actually accredits suppliers that provide microelectronic design, manufacturing, and assembly services to meet certain standards to ensure the integrity and the reliability of the product.

I happen to be familiar with this program because one of the trusted foundries in South Portland, Maine. It is now operated by Texas Instruments. It used to be National Semiconductor.

So my question is, what happened to this program? Has it not worked as well as was hoped back in 2004 when it was launched by the Pentagon? Should Government and the owners and operators of critical infrastructure be making better use of these trusted foundries? What is your assessment?

We will start with you, Mr. Toohey, and then go down the panel.

Mr. TOOHEY. Well, Senator, you very well pointed out the Trusted Foundry Program is a very important system that allows certain mission-critical items, especially new items to go into the Department of Defense supply chain in a very assured way.

In many ways what we are talking about here are parts that are no longer manufactured and are replacement parts for systems that have been in place for many, many years. And that is an area that, at least from my understanding, the Trusted Foundry Program does not deal with. And I think just given the increasing amount of semiconductor content in so many different products, civilian products and defense products, probably a single solution is not going to do it. There does need to be a broader solution to authenticate in partnership with the Trusted Foundry Program.

Senator COLLINS. Well, I guess my reaction to that is similar to the point that Senator Brown raised which is maybe we should look at where we are buying these parts and reconsider the manufacturing of those parts in the United States. We do have the capability, and if the problem of counterfeiting is that high and if, in fact, it is causing us to pay twice for the same part, then perhaps we should look at not only the integrity of the supply chain but whether we are dealing with reputable countries as sources for vital equipment.

Mr. TOOHEY. And Senator, if I could just add. You know, in many cases these counterfeiters are remarking these products. So they may appear as if they were made in the United States. And so that is clearly part of the problem. From a third party, these criminal enterprises like VisionTech present these products as certified military spec products, and that is all just fake. And that is a big part of the problem.

Senator COLLINS. Actually that leads me very well into my next question. So I still want to hear the rest of the panel's assessment of the Trusted Foundry Program, but let me first go to my next question.

Mr. Toohey, in your written testimony, you noted that the Customs and Border Patrol agency plays an important role in anti-counterfeiting efforts by notifying trademark owners of suspected shipments that are coming into our ports.

Now, previously this effort by Customs and Border Protection included sending photos of seized chips to the original industry manufacturer, and they could assess whether or not they were legitimate chips or whether they were counterfeit. But I understand that Customs and Border Patrol officers have now been given revised guidance to redact the identifying marks on the chips in the photographs except for the trademark. I have to say that makes no sense to me whatsoever because they are redacting information that

would allow the manufacturer to assess whether the chip is legitimate or not.

What is your judgment on the change in policy?

Mr. TOOHEY. Well, Senator, you articulated it very well. It was a system that for many years worked very well. Especially now where counterfeiters have very advanced marking techniques, it is almost impossible to tell just by visual inspection whether a chip is counterfeit or not. Really the only way is with the code that is on the chip, and our companies can instantly identify whether that is a counterfeit or an authentic chip—instantly. And it is a process that worked very well for many years.

As a result of an interpretation inside CBP, they have changed that practice, and we have been working very hard to encourage them to revert to the practice of sharing those codes. It is virtually the only way that our customs officials can stop a suspect chip and know whether or not it is counterfeit at the border—the only way. And we have been really asking anyone who will listen to us about how we can work with Customs to change that policy to allow us to stop these chips at our border. We talked about the industry cooperating. We stand very ready and we have been eagerly asking Government officials to let us help them. And it is a policy change that in our view, Senator, needs to happen to protect our borders. We need to close our front door.

Senator COLLINS. Mr. Chairman, I would just note that that is a baffling policy change and one that I hope we can remedy.

I would like to very quickly ask the rest of our panel to comment on those two issues: the Trusted Foundry Program and the change by Customs and Border Protection.

Mr. HILLMAN. As part of our ongoing investigation, the parts that we are purchasing are rare, obsolete, hard-to-find parts that would not be included in this trusted accreditation program. Although it is very clear that the Department of Defense continues to rely on parts that have old manufacture dates, something similar to what is being done for newer parts would be a possibility that could be considered for these older, obsolete parts as well.

Also, regarding the customs activities, for one of the purchases that we have received there was evidence that the Customs department did open up our package and viewed the part that was there. There is no evidence as to what actually occurred as a result of that review, but it was stamped as being opened by our Customs department.

Senator COLLINS. Thank you.

Dr. Persons?

Dr. PERSONS. Yes, thank you, Senator. In terms of the Trusted Foundry, we are aware of that program although again in the scope of this investigation, the analysis of whether Trusted Foundry would be appropriate and so on is just beyond the scope of our current work. So we do not have any information to share with you at this time.

Senator COLLINS. It seems like it is a good model.

Dr. PERSONS. Sure.

And in terms of the CBP, it is the same thing. We did not evaluate CBP's processes and so on. So thank you.

Senator COLLINS. Mr. Sharpe?

Mr. SHARPE. Senator, the Trusted Foundry Program, as I had mentioned before, really is not something that is part of what is available to independent distribution. That would be where Government is dealing directly with the trusted foundry. So I really would not have much to say there.

With regards to the redaction, I completely agree with being able to provide the component manufacturer with as much information as possible from what is being seen at the borders right now.

I will say that the most recent counterfeit report that we have released had a part in it that if the date code was correct, instead of being incorrectly stated, it would have most likely passed the scrutiny of a photograph from the component manufacturer as well. So that is the level of difficulty they are currently facing.

As far as the word "trusted" with regards to independent distribution, what we need to do is we need to get a group of trusted distributors whom are required to do over and above a significant amount of testing and have the abilities to do so. That is one of the biggest problems we have out there right now is there are lots of people who are in business and need to be in business, but they do not have the capabilities that are required to mitigate counterfeit parts as we see them today. There are some that do, but we need to identify who they are and use them and let the other ones who do not have that ability know what they need to do to get up to that level as well.

Senator COLLINS. Thank you. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator Collins.

Senator Chambliss.

Senator CHAMBLISS. Thanks, Mr. Chairman.

Mr. Hillman, I will direct this first question to you, but if anyone else has a comment, I would appreciate it. What indication do we have that the Chinese Government is complicit in this counterfeiting operation?

Mr. HILLMAN. As part of our investigation, we have contracted with vendors to supply us part numbers, sometimes legitimate, sometimes totally bogus, and have found that they were willing to supply those parts. The extent to which the Chinese Government itself is complicit in these activities has not been part of our investigation, although it appears clear from the presentation from Mr. Sharpe that those activities are being undertaken in the open.

Senator CHAMBLISS. Mr. Sharpe, I assume, from what you said and what was just stated by Mr. Hillman, that you said about 40 percent, I believe, of the parts that you saw in the marketplace are estimated to be counterfeit. And we have notified the Chinese of it. Basically they have done nothing. Is that your indication that the Chinese Government is complicit in this?

Mr. SHARPE. I would have to say that the local businessman who accompanied me—I am working off of what he said as far as the percentages go. I have heard also this information floating around from other folks as well. That is as good as my information gets with regard to that as far as just what the accurate percentage number is.

Regarding the Chinese Government knowing about this, it would be basically impossible for them not to know what is taking place

in this marketplace and also in the nearby area of Shantou. It cannot be missed.

Senator CHAMBLISS. Mr. Hillman, your report was focused on the defense industry, and all of you have spoken with reference to that. I assume this is prevalent in every other agency of the Federal Government just as well?

Mr. HILLMAN. Yes. Counterfeit parts and other items that are produced on a counterfeit basis is something that impacts all industries.

Senator CHAMBLISS. Mr. Toohey, that would be the same for individuals going on the Internet and purchasing items such as this. Is that correct? Mr. Toohey?

Mr. TOOHEY. Excuse me. I am sorry, Senator.

Senator CHAMBLISS. I mean, anybody that goes on the Internet and buys these products is going to be subject to the same potential for purchasing counterfeit parts.

Mr. TOOHEY. Absolutely, Senator. This is an enormous problem that affects a broad range of industries and individuals from health care to automotive systems to airplanes mission-critical and non-mission-critical. Unfortunately, though, the biggest incentive is to sell into the most mission-critical systems because that is where the highest markup for these counterfeiters is. But it is a broad problem affecting many industries and it is a growing one, Senator.

Senator CHAMBLISS. In the January 2008 timeframe, a counterfeit chip was found in an F-15 flight control at Robins Air Force Base, and thank goodness it was found by the folks at Robins before it was ever installed. Subsequently, there were another three or four chips that were found to be counterfeit. Do any of you have any information relative to that particular issue?

Mr. HILLMAN. No.

Senator CHAMBLISS. What other resources are there out there other than the Chinese that we know are counterfeit operators? What other countries are the potential resources?

Mr. SHARPE. Senator, we have seen Department of Commerce report, and it shows that there are many other countries that are involved in counterfeiting. There certainly is. It is just that probably the vast majority is coming out of China. We have got counterfeiters right here in the United States, without a doubt, right now who are remarking product, and that is pretty scary to know that.

Mr. HILLMAN. For the purchases that we had made as part of this ongoing investigation, we did an analysis of vendors that were made available willing to supply the parts that we requested, and 79 percent of the responses came from East Asia. The remaining 21 percent were from Central Asia, Europe, North America, and the Pacific Islands.

Senator CHAMBLISS. Staggering.

Mr. Hillman, I listened to your description of what I basically guess you would call a sting operation that you set up. And I also noted in a press report last month about a lady and her mother in Bakersfield, California just creating a company—just built it out of nowhere and got on some approved list and started delivering parts to the Department of Defense over a period of 3 or 4 years. So according to this report, \$2.7 million worth of parts were purchased and sold to the Department of Defense, and they just got them off

the Internet, just went and got numbers, and it turned out that a number of them were counterfeit. Obviously, action has been taken.

But I am astounded that you could carry out that operation with the Department of Defense. And I look at it as certainly a problem on the other end, but there is obviously a problem on our end too with respect to how these companies like the company you created are able to get on that list.

What sort of recommendation would you have for us to think in terms of how we address that issue?

Mr. HILLMAN. In our investigation, we attempted to obtain membership on three different Internet trading platforms. Each of the three platforms appeared to have a varying degree of validation in order to determine the authenticity of our company. In one instance through social engineering simply talking to the individuals, we were able to pretty much gain access with very little background information.

In another instance, we were asked to provide references, addresses, websites, and information. And based upon the results of our work to date, there was no indication that any of our references were checked or determined whether or not we were an authentic company doing a valuable service.

In the third instance, though, we were denied access to that website and they did not really explain their reasons.

Senator CHAMBLISS. Were you asked to give any financial references?

Mr. HILLMAN. Yes, we were asked to provide bank references as well.

Senator CHAMBLISS. How many transactions did you negotiate with the Department of Defense in that operation?

Mr. HILLMAN. The Department of Defense has not been made aware of our investigation. We are releasing preliminary results this morning.

Senator CHAMBLISS. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator Chambliss.

We will just have a fairly brief second round.

Mr. Hillman, some of the numbers on these parts were real numbers that you were checking out. Some were phony numbers. And you got responses for both. But on the real numbers, those were for real systems. Is that correct?

Mr. HILLMAN. That is correct.

Chairman LEVIN. Those are systems that while they need replacement parts, still need parts.

Mr. HILLMAN. That is correct.

Chairman LEVIN. What systems were they? What weapons systems were those parts for?

Dr. PERSONS. Mr. Chairman, if I may, on the two voltage regulators that we purchased, that is a part that goes into the Air Force's KC-130 Hercules aircraft, also the Navy's F/A-18E Super Hornet fighter plane, the Marine Corps' V-22 Osprey aircraft, and then also the Navy's SSN-688 Los Angeles class nuclear-powered attack submarines.

Chairman LEVIN. Those parts may not be currently manufactured but they still must be currently acquired. Is that correct?

Dr. PERSONS. Yes, sir, that is correct.

Chairman LEVIN. That is the millions figure that our staff looked at millions of parts for the 1,800 cases that they looked at which is just a sliver of the problem. So even though these are, you say, "rare"—

Mr. Hillman used the word—these are very important current requirements for these parts. Is that correct?

Mr. HILLMAN. That is correct.

Chairman LEVIN. Now, you said that 21 percent of the parts—or the inquiries or the responses that you got were not from Asia I believe you said, other parts of the world. And most do come from Asia and we all know from other testimony, the vast majority comes from China, and they are openly sold in China. But of the 21 percent not from Asia, many of those could be transshipment points, could they not be, for Chinese counterfeit parts?

Mr. HILLMAN. Yes, that is absolutely correct.

Chairman LEVIN. You do not know the origin of the parts by the fact that you got a response from a particular country.

Mr. HILLMAN. That is correct. And even for the parts that we purchased, oftentimes negotiating with individuals in certain cities within China, at the time that we received payment information, the addresses may have changed considerably, pointing to Shenzhen as the source for the payment as opposed to the manufacturing.

Chairman LEVIN. Mr. Sharpe, you made reference to three new processes that were released by the Department of Defense, and I was not sure, but I think they were testing processes. But I am not sure what you were referring to in your original testimony. Do you know what I am referring to?

Mr. SHARPE. Yes.

Chairman LEVIN. Can you explain that a little?

Mr. SHARPE. Yes, Mr. Chairman. I was referring to three test processes that were identified by SMT Corporation that were new counterfeit processes that we had not seen before.

Chairman LEVIN. Processes to try to determine what is counterfeit.

Mr. SHARPE. Processes that we knew the Chinese were now using on the parts themselves.

Chairman LEVIN. Got you.

Mr. SHARPE. So we did extensive reports on these three processes showing that they looked like, what the evidence is of them, and what is being used to create them.

Chairman LEVIN. We are going to act. We cannot rely on the Chinese to act. I think that has been proven for a long period of time. The Chinese say that they have an effort going on to act against counterfeits and it is baloney. They are openly sold. It is a growing problem.

On the other hand, as you pointed out, Mr. Toohey, some of our manufacturers manufacture in China, and so we can put into place a certification system that the supplier of these parts has been certified to be a legitimate supplier, whatever country might have the manufacturer. In China, there is a lot of counterfeiting going on. It is a clear and present danger, as one of you put it. It is a threat to our troops, and we are not going to let it go on.

So here is what at least I am going to be trying to do. We are going to try to put into place a requirement that the Department of Defense adopt a certification program for parts suppliers. While they are doing that, we have got to defend ourselves. We cannot rely on the Chinese to take action against counterfeits. It has been going on too long. It has been pointed out to them too long. They are not cooperative. They will not even let our staff in, so forth. We just cannot rely on them. So while we are telling the Department of Defense, which I intend to do in an amendment which I will offer, to require the Department of Defense to put a certification in for parts suppliers that these are reliable suppliers, we have to at the border put in an inspection system for parts coming from China.

Now, we do this with agricultural products. If we have a product coming from a particular place which we think will endanger our health, we have a ban on those products or an inspection system on products. We do it with dairy products. We have limits as to what dairy products can come in and so forth.

So what I also would be offering is that while we get a certification program in place, that we require inspection of all electronic parts coming in from China. It is a proven, known source of the problem. It is an epicenter of counterfeits coming into this country.

And a third thing which we can do is to put some pressure on our contractors to go back up the chain or down the chain to make sure that the people supplying the supplier and the people supplying the supplier to the supplier, just going all the way down, are legitimate people. And the only way I know to do that, other than just requiring contractors to so notify folks, is to make our contractors responsible to replace the parts. We cannot any longer have the Government paying for the replacement of these parts no matter what kind of contract it is. And if the contractors are going to be responsible to replace parts which are determined to be counterfeit, we believe—I believe—that they will take very significant steps to make sure that those folks down the chain are not buying counterfeit parts.

Now, you know, we can try to stop this flood—and it is a growing flood according to testimony—in two ways. One, we can try to get it at the source. I am determined and I think we are determined, and I know Senator McCain has spoken on this and other members have spoken. We are going to try to stop this at the source, but we cannot rely on it. So we have got to take all the steps we can to put our fingers in the dyke while we are building the dyke at the same time. We are going to build our wall against counterfeits. We are going to, at the same time, have to put our fingers in the dyke by doing whatever we can that is reasonable, working with our contractors, using the systems which we have to notify the Government and other contractors through the system that we have put in place to make sure that that is used more often.

I guess my last question would be to you, Mr. Toohey, and to you, Mr. Sharpe. While we are asking our DOD to design a system of certification and to help design a requirement for inspection at our border of these parts that are coming in—and we are only talking about the parts that are coming in—we will need the assistance of the industry in trying to figure out how to do that. And I want

to do it quickly because I would like to offer an amendment, and I know I have a lot of cosponsorship. I would like to do that on this defense bill. So within the next week or so, would you be willing to help us with the actual wording of those provisions? Mr. Toohey, can your organization help in that?

Mr. TOOHEY. Absolutely, Senator. We would enthusiastically be willing to work with you. Let me just say we have been working with DOD to already begin this process of authentication. We want to strengthen that. And we would be enthusiastic to work with the committee and ultimately with Customs and Border Protection to ensure that we are catching the parts that are coming in at our border. The industry is critical for that and we have for many years been a partner and we want to strengthen that partnership. So, yes, absolutely, Senator.

Chairman LEVIN. And we will be calling on you. Mr. Sharpe, we will be calling on you as well.

Mr. Hillman, I think it is fairly clear now that your mission here was fairly recently given to you, and it is a mission which is a very important one, but it is kind of a limited mission. This is not a broader investigation where you have looked at a whole lot of things which you might have been asked about, but you were asked to see could you buy—what would be the response if you went on the Internet to buy parts. You did it and so far every single one where you have had a response is counterfeit and every single one of the seven that you know the origin of comes from China. That is pretty strong, clear testimony.

I was just wrapping up with this panel.

Senator MCCAIN. I want to thank them.

Chairman LEVIN. As I just mentioned, they are going to be working with us to try to design amendment language which we might be able to offer in the defense authorization bill on two things to try to build some kind of a certification system for parts suppliers so we can have real authenticity assured, and second, while we are doing that, to have an inspection requirement for parts coming in from China just the way we would with certain vegetables or certain dairy products coming in from certain places where we know there is a problem. We do that with ag products. And the lives of our troops and the mission of our troops is surely important just the way the good, healthy ag products coming in is important as well.

Senator MCCAIN. Well, I eagerly await the opportunity to put it on the defense authorization bill.

Chairman LEVIN. There is a double meaning in that statement by the way—[Laughter.]

Chairman LEVIN.—which I share, by the way, totally.

We thank this panel. Thank you very much.

We are delighted to have an old friend of ours and a great patriot with us this morning, General Patrick O'Reilly, Director of the Missile Defense Agency. We are delighted to have you with us, General, and you can please proceed.

**STATEMENT OF LIEUTENANT GENERAL PATRICK J. O'REILLY,
USA, DIRECTOR, MISSILE DEFENSE AGENCY**

General O'REILLY. Thank you, sir.

Good morning, Chairman Levin, Ranking Member McCain, and other distinguished members of the committee. I appreciate the opportunity to testify before you today on the serious problem of counterfeit electronic parts infiltrating our critical defense systems and the steps that the Missile Defense Agency, or MDA, is taking to prevent their use in the ballistic missile defense system, or the BMDS.

The missile defense mission requires that thousands of parts which comprise the BMDS perform flawlessly under stressful conditions over their operational life to confidently protect our homeland, deployed forces, allies, and friends against ballistic missiles. Our confidence in the BMDS is only as good as the least reliable component.

We categorize a part as counterfeit if it is a copy sold without the original manufacturer's permission or a part whose material performance or characteristics are misrepresented by a parts distributor. Whether the part was knowingly misrepresented has little consequence to MDA. We still have to resolve the unanticipated parts replacement challenge regardless of the intent of the supplier. Although a counterfeit part may pass acceptance testing, we do not know its remaining operational life as it may have been damaged when removed from a previous product or handled in a destructive manner. Additionally, there is a risk of counterfeit parts having malicious functions that could be activated to disable a critical component of the BMDS. Thus, we simply cannot tolerate the presence of counterfeit parts in our missile defense system.

There are more than 3,000 suppliers providing parts to the BMDS supply chain.

The genesis of MDA's problem with counterfeit parts is the rapidly changing nature of electronic parts specifications driven by broad market applications which frequently present us with component obsolescence problems. In other words, a manufacturer changes a part specification and we face a decision to either redesign our components at a prohibitive cost or seek other sources for the original parts through independent or unauthorized distributors.

Despite our efforts to eliminate the use of counterfeit parts, we have discovered through acceptance testing, stockroom inspections, and screening for parts bought from independent distributors, seven incidents of counterfeit parts since 2006. One incident resulted in the removal and replacement of almost 800 parts from an assembled missile hardware. In another, 38 assemblies had to be reworked and 250 parts were discarded. A stockroom sweep at another independent distributor found 67 parts that were remarked and falsely sold as new. All those counterfeit parts were identified prior to their installation into our components.

Due to the diligence of the Missile Defense Agency's quality control personnel and our contractors, we have been able to limit the cost and schedule impact of counterfeit parts. To date, MDA and its contractors have suffered \$4.5 million in rework costs due to counterfeit parts. Of that \$4.5 million, the cost to MDA has been \$352,000 and industry has paid \$1.35 million, with the remainder of the industry costs to be determined by the Missile Defense Agency. However, if a counterfeit part is discovered years after a missile

defense product has been produced, replacing the parts in operationally deployed systems could cost hundreds of millions of dollars.

The best way to eliminate the threat of counterfeit parts in the DOD supply chain is to eliminate their source by restricting the use of independent parts distributors through instituting contract clauses and enforcing their strict compliance. In June 2009, I instituted a policy requiring that only parts acquired from the original manufacturers or authorized distributors will be used in MDA contracts. In cases where a part is no longer manufactured and we must use an independent part distributor, MDA contractors must first verify that they cannot use an authorized distributor. Then our contractors must conduct intensive inspections and testing in order to scrutinize the part's authenticity, including using industry accepted tests like x-rays, die verification, and chemical tests for false coatings.

Additionally, MDA performs site assessments of independent distributors. To date, 51 independent distributors have been inspected and more than 60 percent were assessed as moderate to high risk for providing counterfeit products.

Since 2006, MDA has compiled industry quality assurance best practices called our Parts, Materials, and Process Mission Assurance Plan, or PMAP, and incorporated them into all our new contracts. The PMAP provides additional assurances that our parts are not counterfeit. As MDA developed part authentication expertise, we also participate in the OSD Anti-Counterfeit Part Working Group. Additionally, we issue mission assurance advisories, Government-industry data exchange program alerts, and notify the Defense Contract Management Command and the Defense Criminal Investigative Service when counterfeit parts are discovered.

MDA has no indication of a counterfeit part in any of our fielded BMDS hardware, but aside from the financial impacts, our greatest concern from the use of counterfeit parts is the operational cost of a malfunctioning interceptor, a cost measured in lives lost or the negative impacts on our national security strategy.

I am grateful for this committee's attention for the debilitating impact counterfeit parts can have on our missile defense system and the rest of DOD. We do not want a \$12 million missile defense interceptor's reliability compromised by a \$2 counterfeit part.

Thank you, Mr. Chairman, and I look forward to answering the committee's questions.

[The prepared statement of General O'Reilly follows:]

Chairman LEVIN. Thank you very much, General.

First, let me thank the MDA for providing the committee with assistance in this investigation. It has been very helpful. Our staffs have repeatedly called on Mr. Fred Ship who is currently supporting MDA from the Naval Surface Warfare Center Crane. He has engineering expertise and other technical advice has come from him, and it has been invaluable. We also would recognize Mr. Isaiah Mullis, I believe his name is, from MDA and also from the Naval Surface Warfare Center who has likewise provided us assistance.

You made reference to your looking into independent distributors to try to certify them. Your preference is to get parts only from the

original manufacturers or from authorized distributors, but if there are none available, you say that then independent distributors can be used providing you take a look at them and certify them.

I was trying to find in your testimony—and it probably is in here—your written testimony the number that you used as to how many of them could not be certified with confidence.

General O'REILLY. 61 percent, sir. 61 percent of the ones we have looked at we could not certify. I do not accept a moderate risk. So 61 percent were determined to have either moderate or high risk because of their accounting methods, their stockroom accuracy of how they actually manage their inventories, and their paper trail proving that the components are authentic.

Chairman LEVIN. All right. So part of that process is looking at where do they get the parts from that they are distributing.

General O'REILLY. Yes, sir, and how do they account for it.

Chairman LEVIN. And how they account for it, as well as the other factors that you mentioned.

The care that you take is care that we need to take in other weapons systems, and I think the model that you have used needs to be shared, if it has not already been shared, with all of our other agencies that are buying components for our weapons systems. And I am wondering is your model unique to MDA, or is it something which is agency-wide through DOD that you have just used and modified? Where did you get that model from?

General O'REILLY. Sir, we came up from the—after I took over the agency in 2008, we had had two recent counterfeit parts incidents with telemetry. And I know we talk about the operational systems, but when I conduct a flight test, if I lose my telemetry, I lost the complete value of that test and that is quite expensive also.

Looking into that, we determined on ourselves that, in fact, the history and working with our aerospace industry partners, we found that the independent distributors is where we found all of the counterfeit parts were coming from that were affecting the Missile Defense Agency. So at that point we banned—I signed a policy that, in effect, bans the aerospace companies from using independent distributors without first coming to my agency and gaining approval. And then we scrutinize the specific component which they are buying.

I understand some parts of the Navy have a similar program to that, and I am unaware of any other programs.

Chairman LEVIN. Now, when you had the telemetry problems, were they traceable to particular parts?

General O'REILLY. Yes, sir. Before they were used, we found them as failures in acceptance testing actually at a sub-tier level. I have in my supply chain five levels of companies, and at the middle level is where we found the problem with the specific components, which was an operational amplifier and a frequency synthesizer. Those parts that we found were in a particular company, and we went then and traced where did that company get its parts. And it was eventually from an independent distributor.

Chairman LEVIN. And do you know where they got their parts from?

General O'REILLY. No. At that point, we handed it over to the Defense Contract Management Command and the Defense Criminal Investigative Service.

Chairman LEVIN. And do you know whether that amplifier and that synthesizer were counterfeits?

General O'REILLY. Yes. Our indications were they were black topped, which is the die is not correct. It does not match what the paperwork said it would be. And in the other case, the parts were remarked. There was evidence that the age codes were remarked on those components.

Chairman LEVIN. Again, I am trying to get the chronology here. Did that investigation take place after there was the flight problems or before?

General O'REILLY. It was before. We actually caught all of these before, and so we have not had a failure that we know of related to a counterfeit part. But it was only because our supply chain—at some point someone caught the fact that a part did not look right or it failed an acceptance test.

Chairman LEVIN. And there was what? A real possibility of failure if you had not caught it? Is that where you are at?

General O'REILLY. Sir, yes. There is a risk and it is a risk we cannot take. We do not know the history of that component. A lot of times they are damaged when they are removed from their previous product due to heat and then they will be susceptible to stressful conditions in our tests. And we are very concerned about then a failure.

Chairman LEVIN. Now, it has been argued that these parts can last some time, and if they fail, that it would be downstream at some point.

General O'REILLY. Yes, sir.

Chairman LEVIN. That is what the argument is of some folks who say that the risks are not real. Your answer to that is, as I understand it, what?

General O'REILLY. Sir, the risks are real. Just because they pass an acceptance test, that only gives you a limited insight to what the remaining life of that component could be, and we cannot take the chance for one of our interceptors to fail.

Chairman LEVIN. So that the life of that part is what is at issue, not whether it can pass an immediate acceptance test, but what how long it will last if it is a counterfeit part and how reliable it is.

General O'REILLY. Yes, Senator, or if there is some other damage that occurred that we could not tell because we were not looking for it at the time of the acceptance test.

Chairman LEVIN. Now, in your written testimony, you used a slightly different figure than you did in your oral testimony in terms of the cost to MDA of the seven instances of counterfeit parts, and you used a figure of \$4 million. What is the difference between those two numbers?

General O'REILLY. I checked the math of my staff this morning, sir.

Chairman LEVIN. I sometimes do that too, they will tell you. But you are known for that kind of leadership and that is the kind of leadership which we very much welcome. Thank you.

Senator McCain.

Senator MCCAIN. Well, thank you, Mr. Chairman, and thank you, General, for your important testimony. I guess I would like to start out by asking you what I asked the other panel. How serious a problem do you think this is?

General O'REILLY. Extremely serious, sir.

Senator MCCAIN. The largest case, as you have already testified, cost MDA \$3 million to remove counterfeit parts discovered in the mission computer of the production THAAD interceptor. Is that correct?

General O'REILLY. Yes, sir. The exact number is \$2.74 million, but yes, sir.

Senator MCCAIN. And how many counterfeit parts were there in this incident? I believe it was about 800. Is that correct?

General O'REILLY. Yes, sir. It was 800 and there were 49 that were—actually 50 that were used in a mission computer and one mission computer was flown in a flight test. So 49 were actually used in building up computers for the interceptor.

Senator MCCAIN. So I guess my question is—maybe you could briefly trace it for me how the parts could infiltrate so deeply into the supply chain.

General O'REILLY. Sir, it was at one of our subcontractors, Orbital, that builds up the booster system and it was in the control units of that. And during their ATP, they then—when they bought the lot of parts, it was a large lot of parts. Therefore, they caught—out of several hundred, one of them found did not perform right electronically. And then they were able to look into it and discovered that it made the whole lot suspect.

Senator MCCAIN. And you made up the cost rather than the contractor for the replacement. Is that correct?

General O'REILLY. Sir, there is an award fee process that is associated with this, and we are going through the evaluation of that award fee period that is to Lockheed Martin and we take this into account. We have not completed that work. It will be due within 60 days, and we have been very strict in the past on ensuring compliance with quality assurance provisions.

Senator MCCAIN. Well, we will try to help you with legislation to make sure that responsibility does not apply to the American taxpayer.

It seems to me that one of the understated or not sufficient emphasis has been placed on these intermediaries. Chairman Levin at the beginning of the hearing, I am sure you noticed that these different entities—they do not go direct from China to THAAD. They go through three or four different iterations. It seems to me that that is a serious problem. And some of these people who are, quote, subcontractors who are intermediaries are simply a phone and a desk and rake off some of the money as it goes through. Is that too stark a generalization?

General O'REILLY. Senator, it is not the subcontractors, but it is the suppliers which they use.

Senator MCCAIN. Intermediaries.

General O'REILLY. But yes, sir, I would say that. That is why we have banned the use of these intermediaries. They must buy directly from an original manufacturer or one of their authorized

dealers. And if we are in a situation where that source does not exist, my agency has to approve the use of an intermediary or an independent distributor.

Senator MCCAIN. So you are trying to take steps to make sure that never again would you see a graph like Chairman Levin put up on the screen here today, the different layers of intermediaries.

General O'REILLY. Yes, sir. That is exactly what we are trying to do, go directly to the manufacturer or their authorized dealer.

Senator MCCAIN. Are the other Services doing the same thing?

General O'REILLY. Sir, we present our models and our results to the working group that OSD has established. I do not have direct insight into what the other services are doing.

Senator MCCAIN. Well, Senator Levin and I are committed to trying to put legislation into the defense authorization bill, as he mentioned. Obviously, we do not want to be guilty of overreach. We do not want to be guilty of overreaction. But since you and others have recognized and testified that this is a serious issue, we would appreciate your input in any legislative fixes that need to be made between now and the next week or 2 when, hopefully, we take up the defense authorization bill. Have you got some ideas for us?

General O'REILLY. Sir, one of the implications of the policy which the Missile Defense Agency has established is if—this creates clauses in our contract. And regardless if they are cost-plus or fixed price, if a clause is violated by the contractor and in this case he does not verify authenticity of the parts he is using, then that cost becomes unallowable, and an unallowable cost, including the rework, then would be borne by industry.

Senator MCCAIN. Well, then why did we end up giving \$2.9 million back to Lockheed Martin?

General O'REILLY. Sir, that contract is 10 years old, that particular one, and that was not a clause in the contract. But it still does not exhaust my remedies. I still have award fee and other steps I can take in order to remedy the cost to the Government.

Senator MCCAIN. Well, I guess finally you are in complete agreement with the Chinese foreign minister's spokesman Hung Li who said, quote, the Chinese government has always paid a great deal of attention to and has promoted cooperation with relevant overseas bodies in the fight against counterfeits. This is universally acknowledged. Do you agree with the Chinese foreign ministry spokesman, General?

General O'REILLY. Sir, the data indicates the opposite.

Senator MCCAIN. I am shocked to hear that that is the case. [Laughter.]

Senator MCCAIN. I thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator McCain.

If you would get to us, General, immediately because we are going to be drafting language. The procedures that you use in terms of certification where there is no original manufacturer or supplier available. If you can get us that procedure, I presume it is your own procedure. It is in writing or however it is, or write it up for us.

And also that clause that you just made reference to. Was that a clause which says that you cannot be reimbursed if you have not used a certified—give us that clause again.

General O'REILLY. Our new policy puts into all new contracts a clause that says the contractor has to use—he is responsible for using original manufacturer's parts or their authorized dealer only. And if they violate that, the cost that is incurred in the Government, when that is discovered and the remedy is implemented, will then not be an allowable cost to the contract.

Chairman LEVIN. Got you. And does that include if they are not able to get to the original manufacturer, they can get to one of your certified distributors?

General O'REILLY. No, sir. If they do come to us and we have done our due diligence and we authorize it and then we find out later that it is still a counterfeit part, which we do our best to ensure that does not happen, but in that case, it would be an allowable cost.

Chairman LEVIN. Okay, and that is also in the language then that would be in the contract?

General O'REILLY. Yes, sir.

Chairman LEVIN. Can you get us that contract language? It would be helpful.

Senator Hagan.

Senator HAGAN. Thank you, Mr. Chairman. General O'Reilly, it is a pleasure to see you again, and thank you for your work as the Director of the Missile Defense Agency.

Hearing this testimony and thinking about the telemetry and all of the very fine-tuned calculations that every part has to adhere to—and I think of probably millions of pieces of parts that we are talking about and dealing with—I guess the question is how comfortable do you feel now with these protocols that you have put in place. I think at one point you said that if they use an independent supplier that is not on this approved, authorized original part, then the companies would have to come to you. I just think of you would have to have a whole other agency just to deal with the sort of contracting issues.

General O'REILLY. Senator, we actually do. We work very closely with the Defense Contract Management Command. They have onsite personnel. I have 50 onsite personnel myself. And it is a combined effort. And also, most of these incidents are occurring at lower levels of the supply chain, a third or fourth level, and the prime contractors—obviously, they are motivated not to have this happen too. So we literally form a very large set of scrutinizers that work through the supply chain. But being coordinated and working across industry and with other agencies is the key.

I am not comfortable, even after I have implemented these, because as you sit there in a flight test or in a live fire and you watch the operation of these systems, you know how precise they must perform, as you have referred to, and we sweat the details. And so I really would not be comfortable that would remove the vigilance which we have already put in place. It is necessary.

Senator HAGAN. Certainly.

How comfortable are you that the prime contractors and their subcontractors are also having the due diligence where they are looking out for these same instances that you are?

General O'REILLY. Senator, I believe they are highly motivated to make sure. And one is they need to get through the develop-

mental phase to get to production contracts. And then most of our production contracts are fixed price, which means they bear the cost, in fact, if a counterfeit part is discovered.

Senator HAGAN. I know that you do not have this aging equipment as some of the other branches of our military might have. But what if a part is no longer produced by the original either independent supplier or the original authorized dealer and it then has to be remanufactured? Is there a chain of—following that chain, how would you—do you have that as a problem?

General O'REILLY. Yes. There is a series of engineering decisions that have to be made between the prime contractor and the subcontractors affected and the Missile Defense Agency. And we have to make the decision, is it worth it to go out and produce our own components?

The problem is and the problem referred to before of the trusted foundries is we use very few components, but they are spread out over a large spectrum of part types. So in many cases, we are less than one-tenth of 1 percent of the overall market for our component. And so we are confronted with having to decide do we have to redesign our circuitry, and that often is the case and we run into obsolescence. Almost every one of my manufacturing contracts has an obsolescence CLIN part of the contract that has to redesign primarily due to electronic parts no longer being manufactured.

Senator HAGAN. So how can you assure that that is in that scenario the original part that you, in fact, are contracting for?

General O'REILLY. We have assessments from industry that project the life of a component, and we select parts that are in the early stages of their life. It is called a sunset clause, and they are not at the end of their operational life and have a tendency to change. Sometimes we are caught off guard, though, on those. And it does require a continual amount of engineering work to relook at the designs that have already been proven because of the discontinuity in our supply chain of the electronic parts.

Senator HAGAN. Have you recognized any suppliers lower down the chain of parts that have repeatedly been found to have counterfeit parts being used? And if so, are you taking action to be sure we do not contract with those suppliers?

General O'REILLY. We have always been scrutinizing our parts usage and our sources because of the nature of our work more than what I have seen in some of my other acquisition jobs in the Department. And because of that, we have not found a case where someone is willfully or repeatedly, but I must say that in the seven cases—in five cases, the supplier actually completed the repair at their own cost and did not charge the Government for it in five of the seven cases. So they recognize. A company such as Honeywell actually went out and did a complete review after one of our cases of their entire stockage and swept through and removed anything that indicated that it was a counterfeit part, and they also instituted new policies.

Senator HAGAN. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator Hagan.

And thank you, General. And we really would look forward to your being able to give us that information literally in the next couple days because we are going to try to formulate in amendment

form. And I think we will have broad support from this committee that has heard this testimony and I think a lot of other Senators who are following it. This is quite an amazing story and it has got to change direction quickly.

You have taken in your agency, which is the right action. It has been strong. It has been direct. It has caught some real problems before they created some real problems, and your testimony has been extremely helpful. We are grateful for it. Thank you.

General O'REILLY. Thank you, Senator.

Chairman LEVIN. You are excused unless you have some other comment you want to make.

General O'REILLY. No, sir. Thank you, sir.

Chairman LEVIN. Okay. Your stomach is not growling there?

General O'REILLY. Not yet. [Laughter.]

Chairman LEVIN. Thank you. Okay. Now, we are going to have a vote we think any minute. What we are going to do is break now for just 10 minutes. I am going to go vote. I am going to come back. We are going to get the opening statements before lunch, and then we will break probably for about an hour after the opening statements. But we will be able to get the opening statements in before lunch, and then we will come back after an hour break or so. So we will stand adjourned now for 10 minutes. [Recess.]

Chairman LEVIN. The committee will come back to order, and we will move to our third panel. Then we will receive the opening statements, and then as I indicated before, we will break for about an hour for lunch.

Before I call on you, let me thank each of you for being here today and to thank you and your companies for your cooperation. We very much appreciate that cooperation with this committee and we give you credit for doing that because I know that some of these questions may be difficult to answer, but the fact that you are cooperative with us is something that stands in your favor.

Is it Mr. Kamath? Am I pronouncing your name correctly? Kamath?

Mr. KAMATH. Yes, Mr. Chairman. Kamath is fine.

Chairman LEVIN. Okay. And it is Vivek?

Mr. KAMATH. Vivek.

Chairman LEVIN. Vivek Kamath. So you are the Vice President of Supply Chain Operations for Raytheon. So we will start with you.

**STATEMENT OF VIVEK KAMATH, VICE PRESIDENT, SUPPLY
CHAIN OPERATIONS, RAYTHEON COMPANY**

Mr. KAMATH. Thank you, Mr. Chairman. Mr. Chairman, Raytheon appreciates the opportunity to work with you on this important inquiry into counterfeit electronic parts in the Department of Defense supply chain. These parts making their way into military equipment pose a real threat to our national security.

Mitigating the risks posed by suspect and counterfeit electronic parts is an issue that Raytheon takes very seriously. Our business and our reputation demand this approach, which is why Raytheon spends a great deal of time, resources, and efforts tackling this problem on a daily basis.

As in any market, counterfeit electronic parts enter the DOD supply chain because of supply and demand. Rapid turnover in high technology items provides a steady source of used materials that can end up as counterfeit parts. In addition, obsolete parts pose a challenge because original equipment manufacturers may have stopped making these parts or left the industry altogether. Despite these challenges, DOD and its suppliers must obtain the authentic electronic parts needed to build, maintain, and refurbish defense systems.

Across Raytheon, our supply chain covers thousands of programs and contracts involving a vast number of suppliers. We issue hundreds of thousands of purchase orders every year. Purchase orders for electronic parts where the risk of counterfeiting is the highest may cover multiple lots comprised of thousands of individual parts.

As a company, Raytheon is committed to providing genuine electronic parts to our customers. Like others in the industry, Raytheon mandates that suppliers certify in writing that the electronic parts they are providing meet the standards in the purchase order, including requirements for authentic parts from authorized sources.

In 2009, Raytheon formed a cross-business team to develop an enterprise-wide counterfeit parts mitigation policy. This policy, which builds on existing business practices, was introduced in July of this year and will be fully implemented by February of 2012. Our counterfeit parts mitigation policy assigns specific responsibilities to Raytheon supply chain management, engineering, mission assurance, and other functions. The policy also focuses attention on aspects of our supply chain that are most likely to present risks, such as procurement of electronic parts from independent distributors.

To further reduce the possibility that counterfeit parts might find their way into our products, Raytheon is developing a preferred supplier list for distributors and brokers and will mandate its usage across our company. We will also consolidate purchasing through a centralized procurement organization.

In addition, Raytheon is a member of the Government- Industry Data Exchange Program, also known as GIDEP. The GIDEP reporting system provides a means for manufacturers and suppliers to alert other GIDEP members when they identify potential counterfeit parts, assemblies, components, and their suppliers. This kind of information sharing can help stop suppliers of counterfeit parts in their tracks. Raytheon treats GIDEP reporting as mandatory. Our new enterprise policy will reinforce this practice.

In conclusion, given the scope and dynamic nature of the threat, counterfeit items will remain a challenge. The policies, practices, and measures that Raytheon has put into place will further protect our supply chain from counterfeit parts and limit exposure and mitigate risks for our customers and our company. Effective policy responses will further refine industry best practices and improve information sharing while avoiding costly or timeconsuming solutions that provide little additional protection for the warfighter.

We thank the committee for focusing its attention on this challenging issue. I would be happy to answer questions when we re-

turn. And I would like to ask that the entire statement be made part of the record. Thank you, Mr. Chairman.

[The prepared statement of Mr. Kamath follows:]

Chairman LEVIN. Thank you. The entire statement will be made a part of the record and that is true of all statements here today.

Mr. DeNino, you are the Vice President, Corporate Procurement for L-3 Communications. So thank you.

STATEMENT OF RALPH L. DeNINO, VICE PRESIDENT, CORPORATE PROCUREMENT, L-3 COMMUNICATIONS CORPORATION

Mr. DENINO. Thank you, Chairman Levin, and good afternoon.

On behalf of L-3 Communications, I appreciate the opportunity to be here today to address the important issue of counterfeit electronic parts in the U.S. military supply chain.

L-3 Communications is a prime contractor in command, control, communications, intelligence, surveillance, and reconnaissance systems, aircraft modernization and maintenance, and Government services. L-3 is also a leading provider of a broad range of electronic systems used on military and commercial platforms. We serve a wide range of customers, most notably the U.S. Department of Defense and its prime contractors.

The reality that L-3 and the entire aerospace and defense industry faces is that electronic components are increasingly susceptible to two significant risks: obsolescence and counterfeiting. With sophistication levels of counterfeiters escalating, detection and avoidance are becoming increasingly difficult. These issues are exacerbated by the service lives of fielded defense weapons systems being extended well beyond their original planned life cycle, furthering the challenge of the ever-shortening life cycles of electronic components, which is being driven by commercial technology changes.

L-3 has been proactive in both managing obsolescence and counterfeit part risk mitigation. Procedures and processes are in place to manage both of these areas with improvements being driven to stay current with emerging counterfeit threats. Supply chain management techniques have been implemented to limit the number of independent distributors that can sell parts to L-3. Strict and progressive testing methodologies are in place. Reporting of incidents is required and training and education of personnel is ongoing.

L-3 will continue to improve its obsolescence and counterfeit parts mitigation programs through strict adherence to its corporate procedures and policies across the entire enterprise, controlling independent distributor purchases, and by providing training and education to our personnel. Additionally, we will continue to work with our Government and industry partners and professional associations to develop and incorporate best practices throughout the supply chain.

In any case, if any part is identified as suspect counterfeit, L-3 will, as it has in the past, promptly notify all of its affected customers and work with them to remediate the problem in whatever way the customer determines is needed at no cost to the Government.

Finally, while L-3 has made significant efforts over several years to address the counterfeit parts challenge, the Senate Armed Serv-

ices Committee's examination of the issue has been important in underscoring the seriousness and depth of the problem and the need to rapidly develop an effective solution. L-3 looks forward to working with other companies and the committee in achieving this goal and will be pleased to answer any questions that the committee may have.

[The prepared statement of Mr. DeNino follows:]

Chairman LEVIN. Thank you very much, Mr. DeNino. Is it Mr. Dabundo or Dabundo?

Mr. DABUNDO. Dabundo.

Chairman LEVIN. Dabundo. Mr. Dabundo, put your mike on there, if you would. You are the Vice President and the P-8 Poseidon Program Manager at Boeing. So please proceed.

STATEMENT OF CHARLES DABUNDO, VICE PRESIDENT AND P-8 POSEIDON PROGRAM MANAGER, BOEING DEFENSE, SPACE AND SECURITY

Mr. DABUNDO. Mr. Chairman, thank you for the opportunity to appear before this committee regarding counterfeit electronic parts in defense systems. This is a serious issue that has commanded the attention of Boeing, the defense industry, and the United States Government for some time. Unlike my counterparts on this panel, I do not have overall supply chain responsibilities for my company, and accordingly, Boeing requests permission to submit a separate letter that addresses in detail Boeing's policies and initiatives on counterfeit parts.

Chairman LEVIN. That will be made part of the record.

[The information referred to follows:]

[COMMITTEE INSERT]

Mr. DABUNDO. Thank you, sir.

Based on my experience working at Boeing for nearly 30 years, I can say Boeing is fully committed to the safety, quality, and integrity of our products, and ensuring that those products are able to accomplish the missions required by our military and civilian customers. As an aircraft manufacturer, Boeing purchases and installs thousands of parts from suppliers. We require our suppliers to deliver a conforming product that meets our spec requirements. Addressing nonconforming products is essential, and Boeing and our suppliers have rigorous quality processes to address such parts.

The P-8 program was awarded to Boeing in 2004 and has had a longstanding track record of successful execution. The program is based on an in-line production process that leverages the commercial 737 production system and utilizes robust Government-approved military and commercial processes in accordance with the Federal acquisition regulations and the contract between the U.S. Navy and Boeing Defense, Space and Security, or BDS. These processes have been a key to enabling the program to meet its program or record milestones with a safe, quality product at a cost that has been consistently below cost projections at program inception.

Boeing and our P-8 teammates have built six flight test aircraft and two ground test aircraft to date. Four of those aircraft are at the Naval Air Station in Patuxent River and have flown in excess of 1,200 flight hours, and two additional aircraft will be delivered to the Navy by February 2012.

The first low-rate initial production aircraft has completed its maiden flight, and it is in the final stages of installation and check-out at the BDS facility prior to delivery to the U.S. Navy in February 2012.

And the program remains on track to meet IOC in 2013.

As mentioned above, leveraging the commercial production system has been a key to the success demonstrated by the program, and separate divisions of Boeing Company, BDS, and Boeing Commercial Airplanes, or BCA, are required by the Federal acquisition regulations to have a contract in place governing the transition of the commercial item from BCA to BDS. The aircraft that BDS purchases from BCA is manufactured in accordance with BCA's existing FAA-approved quality system, and once delivered to BDS, the work is completed in accordance with applicable Government quality assurance requirements. Both sets of processes are based on many years of experience with a wide range of customers and a strict focus on safety, quality, and product integrity.

Addressing nonconforming products is essential and we rely on our quality processes to identify and disposition parts that have been identified as such. Boeing treats all nonconformances with a significant level of concern to ensure that safety and integrity of the product is maintained, and this is accomplished by qualified subject-matter experts who utilize a comprehensive set of processes and procedures for addressing nonconformances encountered during the build of the aircraft. Suspect counterfeit parts represent a subset of the potential types of nonconformances and, as such, are covered within these processes.

If nonconformances are encountered during the build of the BCA commercial deliverable, the processes utilized on the P-8 are governed by BCA's quality and material review processes which are AS9100 compliant and part of an FAA-approved quality system under production certificate 700. PC 700 was issued to Boeing in 1997 for the 737NG production by the FAA after demonstration that Boeing has adequate facilities and quality control systems to ensure it meets the stringent safety and reliability requirements.

If nonconformances are encountered during the installation and checkout portion of the build that is executed by BDS, the processes utilized on P-8 are governed by BDS's quality and material review processes which are also AS9100 compliant, overseen by the Defense Contract Management Association, and part of our NAVAIR-approved P-8 quality system plan in accordance with our contract with the Navy.

To my knowledge there have been three instances of suspect counterfeit parts that have been installed on P-8 aircraft. Two of those were assessed and dispositioned using the BCA commercial quality and engineering processes and the third using BDS quality and engineering processes. In all three cases, the safety of the P-8 and the people who operate it were not at risk and the appropriate processes were utilized by people qualified to assess and disposition these nonconformances.

So in summary, sir, suspect counterfeit parts are a serious and industry-wide issue that has affected the P-8 program. Boeing has utilized our Government-approved quality and material disposition processes to address these suspect counterfeit parts, and while

BDS and BCA have slightly different quality and material disposition systems, they are both under Government regulatory control and oversight and have a pedigree that ensures the safety and integrity of the P-8 and the people who operate it are maintained at all times. And that pedigree is based on many years of application on Boeing military and commercial products which have and continue to set the industry standard for safety, quality, and reliability.

That concludes my oral statement to the committee.

[The prepared statement of Mr. Dabundo follows:]

Chairman LEVIN. Thank you, Mr. Dabundo.

We will now recess until 2 o'clock, and for the convenience of those of you who want to take advantage of it, there is a cafeteria here, a public cafeteria, in the basement of this building that you are free to use if you so desire. So we will stand in recess till 2 o'clock.

[Whereupon, at 12:57 p.m., the hearing was recessed, to reconvene at 2:00 p.m.]

Afternoon Session - 2:00 p.m.

Chairman LEVIN. Good afternoon, everybody, and we will come back to order.

Mr. DeNino, let me start with you. Between October 2009 and November 2010, L-3 identified two counterfeit parts in display units that it had sold to the military. Now, when the second counterfeit was discovered in November 2010, L-3 learned from its supplier, which was Global IC in California, that both counterfeits, both the October 2009 one and the 2010 November one, had been supplied to Global IC by the same company in China called Hong Dark Electronic Trade. Global IC was the supplier to L-3.

Now, Global IC then identified a third part which had been sold to L-3 from Hong Dark, but L-3 did not test that third part until October 2011, which is nearly a year later after you were notified. And you did not test that part until after our investigation began, and you were notified of it. Now, that testing identified the third Hong Dark-supplied part as suspect counterfeit.

So L-3 had already installed that third part on display units for another military aircraft.

So the question is why did it take L-3 so long to test that third part?

Mr. DENINO. The third part was initially quarantined when L-3 found out back in November 2010. We had purchased 89 parts. Only three had been used. The other 86 were quarantined. The parts were to be tested, and they did not get tested until as you indicated, until recently, and we did confirm that those parts were suspect counterfeit.

The parts—there is no real good answer on that other than the parts should have been tested and we did not. But we are taking the corrective action now. We have notified the customer, as we have with the other two incidents, and we will take whatever action is necessary to repair and replace those parts.

We have also developed a system to avoid instances like that in the future.

Chairman LEVIN. Now, what we learned is that Hong Dark had supplied parts to L-3 via Global IC on approximately 30 occasions.

There was a total of 28,000 parts that had been supplied to L-3 via Global IC which had originally come from Hong Dark. You learned about that, I think, recently from staff. Is that correct?

Mr. DENINO. That is correct, Senator. We learned, with the help of the committee, that there were additional parts that Hong Dark had provided to L-3. We took action, issued a demand letter to Global IC Trading, received the information. We requested the data on October the 20th, received it on October the 21st. Upon receipt of that letter, we notified the affected companies of L-3 the same day, October 21, that they had parts that were suspect just by the nature of them coming from a supplier that had already provided three counterfeit devices to L-3.

The divisions took the action to go off and test parts. Many of those devices are in testing right now. We do not have any of the test results back yet. Where we do not have stock on those parts, we are looking at other data and analysis, and we will notify all customers upon completion of that.

We also took a couple other actions just to be very conservative. We checked with the suppliers that we currently have today. We only have four independent distributors that divisions can use. We went to all four to validate that. Not only did they never sell anything to us from Hong Dark, but they never purchased parts from Global IC Trading that were provided to L-3. All four confirmed that.

We then went one step deeper with another 11 suppliers that were formerly on our list of approved suppliers, and we found the exact same information.

Chairman LEVIN. Now, why did it take so long for you guys to ask Global IC for the information? Why did it take a committee investigation before you would ask your supplier, hey, how many times has Hong Dark been the supplier to you, Global IC? I mean, this is 30 occasions, 28,000 parts and now you are scrambling to find out where those parts are?

Mr. DENINO. And we would much prefer not to be scrambling to make that determination.

Chairman LEVIN. Why did it take a committee investigation before you would ask your supplier, hey, we have got three occasions now where the company that supplied you parts, this Chinese company, Hong Dark. How many other occasions have you given us parts, sold us parts that originally came from Hong Dark? Why did that take so long?

Mr. DENINO. Well, it happened when we found out about the third part, and in retrospect, it would have been better if we had checked earlier. It was not something that was picked up. We had—

Chairman LEVIN. No, it did not happen, as I understand it, when you found out about the third part. You found out about the third part in November of 2010, but until we told you during our investigation that we thought there were 30 occasions, when we learned that via Global IC, then you found that out. My question is why did you not ask Global IC how many times they had supplied you with Hong Dark parts.

Mr. DENINO. We should have done that checking on our own.

Chairman LEVIN. Now you are saying you have taken steps so that that is not going to happen again.

Mr. DENINO. Yes, we have.

Chairman LEVIN. Now, has L-3 determined what military systems those—I want to get the right number here—28,000 parts are on? Have you determined that yet?

Mr. DENINO. Yes, we have. The balance of the parts, roughly 6,500, are not on DOD systems. We have the information on the balance.

Chairman LEVIN. How many different systems are the balance on?

Mr. DENINO. Probably 12 to 15.

Chairman LEVIN. And have you notified the services which 12 to 15 they are on?

Mr. DENINO. We are in the process. As I stated, we are doing the testing and we want to provide a complete package.

Chairman LEVIN. When you do that, when you provide that information to the services, will you let this committee—

Mr. DENINO. We would be pleased to.

Excuse me, Senator. I would just like to add one other comment.

Chairman LEVIN. Sure.

Mr. DENINO. Of those 28,000, roughly 14,000 have already been identified, and that information has been provided to the committee.

Chairman LEVIN. Of which systems?

Mr. DENINO. This is on the VRAM and Lattice chips on the C-27J and the C-130J.

Chairman LEVIN. Let me get to that in a minute.

But you have identified, you believe, 12 to 15 systems that those parts are on?

Mr. DENINO. As a max. We will provide detailed information.

Chairman LEVIN. Can you tell us some of those systems now?

Mr. DENINO. General Dynamics, L-3050V. There is a thermal imager, MK-46, sold to Cole Morgan.

Chairman LEVIN. Do you know what that goes on, what weapons system that is a part of?

Mr. DENINO. I am not—

Chairman LEVIN. That is okay. Keep going then. We will figure it out.

Mr. DENINO. There are some spares for Northrop Grumman.

Chairman LEVIN. For what? What system, do you know?

Mr. DENINO. GHMD, and there is also Global Hawk. And Raytheon Excalibur, and Raytheon Missile Systems, and United Launch.

Chairman LEVIN. Do you know what system for United Launch?

Mr. DENINO. I do not, sir.

Chairman LEVIN. How about the Raytheon Missile Systems? Do you know—

Mr. DENINO. I do not.

Chairman LEVIN. The Global Hawk has some suspect parts on it?

Mr. DENINO. There is one part that was provided that is being tested. It is suspect only in that it came from Hong Dark.

Chairman LEVIN. Which is a pretty good reason to be suspicious, would you agree, given their history?

Mr. DENINO. That is why we are having it tested. Yes.

Chairman LEVIN. Now, do you know if Raytheon was notified of that suspect part that you just told us about before today?

Mr. DENINO. Not yet at this point. The parts are being tested. We have quarantined whatever stock on any of these parts exist in our facility.

Chairman LEVIN. How long is it going to take to be tested?

Mr. DENINO. I suspect everything will be complete within 2 weeks.

Chairman LEVIN. Now, in September, September 19th, just about 2 months ago, a month and a half ago, L-3 Integrated, the prime contractor for the C-27J, notified that Air Force of a suspect part on eight 27J's, including two that are in Afghanistan. Is it true that you did not notify the Air Force of that because you were not aware of it until the committee's investigation?

Mr. DENINO. That is correct. We had properly notified our customer—our Displays Division had.

Chairman LEVIN. But did the Displays Division notify the Air Force?

Mr. DENINO. No, they did not.

Chairman LEVIN. Do you know why?

Mr. DENINO. They did not notify the Air Force because Displays' customer was not the Air Force. It was Alenia, and Displays, upon finding out the problem, which they found out on their own, quarantined the parts, had them tested, confirmed that there was a suspect, wrote the GIDEP, provided notification.

Chairman LEVIN. When did they find that out?

Mr. DENINO. Can you just confirm the date of the part, please?

Chairman LEVIN. Okay.

Mr. DENINO. The date that you started. Was it September?

Chairman LEVIN. No. The date of the notice to Alenia.

Mr. DENINO. Oh, I am sorry. It was December 16th of 2010.

Chairman LEVIN. Now, Alenia was supplying that component, were they not, to L-3 Integrated Systems?

Mr. DENINO. That is correct.

Chairman LEVIN. So L-3 is the prime on that. And did L-3 Display, which found the problem, notify its sister corporation or sister—

Mr. DENINO. They did not.

Chairman LEVIN. And why would not they do that?

Mr. DENINO. The responsibility was to notify the customer. We recognized, through the efforts of the committee, that there could be improvement in our own system, and this probably applies across the board in our industry. So we are implementing a revised system so that when we have a failure or a suspect counterfeit device, I personally will be notified through the system. We will know from that system—we are modifying an existing process that we have to add data so that we can make the determination on where those parts are used upstream and we can put in place a closed loop system.

Chairman LEVIN. So everybody in your own company and its components will know when there is a suspect counterfeit part.

Mr. DENINO. That is correct.

Chairman LEVIN. That was not the case at that time.

Mr. DENINO. No. We knew that there was a suspect counterfeit part, and notification had been issued.

Chairman LEVIN. But not to your own—

Mr. DENINO. Not to our own company. To our customer.

Chairman LEVIN. I understand, but inside of your company, you did not notify the prime which was also a subsidiary of L-3.

Mr. DENINO. That is correct. There was no process in place to do that.

Chairman LEVIN. That is another process that you put in place now.

Mr. DENINO. Yes, sir.

Chairman LEVIN. Now, do you know whether or not the reporting system, GIDEP, was notified of the counterfeit by L-3 Displays?

Mr. DENINO. Yes, they were. A GIDEP report was issued on 12/20 of 2010.

Chairman LEVIN. So that was put into the GIDEP system.

Mr. DENINO. Yes, it was.

Chairman LEVIN. Do you use GIDEP for every counterfeit you find or just some of the time?

Mr. DENINO. No. It is not used on every device.

Chairman LEVIN. Why is that?

Mr. DENINO. We will be using GIDEP going forward. As you have probably seen from the GAO report, there are challenges with the GIDEP system primarily. GIDEP is not designed for counterfeit parts. GIDEP handles all sorts of issues and nonconformances on everything across the spectrum. It is not specific to electronic components.

Chairman LEVIN. But it includes—

Mr. DENINO. Yes. It includes.

Chairman LEVIN. And is it now your plan to utilize that system for every suspect counterfeit part you discover?

Mr. DENINO. We will be using both GIDEP and ERAI.

Chairman LEVIN. But GIDEP you are going to use for every counterfeit now?

Mr. DENINO. Yes, we will.

Chairman LEVIN. Mr. Dabundo, let me ask you a couple questions now about Boeing.

Boeing found out about the suspect counterfeit part in the ice detection module on the P-8 in January 2010. On August 17, 2011—that is more than a year and a half later—Boeing finally notified the Navy. That in that book of yours, if you need to look at it, is tab 28. And the notification says, quote, priority critical, and quote, it is suspected that the module may be a reworked part that should not have been put on the airplane originally and should be replaced immediately. So Boeing had known for more than a year and a half that the “critical,” in its words, problem existed.

Now, why did it take a year and a half to recommend the removal of that part?

Mr. DABUNDO. Sir, if I may walk you through a little bit of the chronology of that part. As you noted, BAE notified Boeing via a notice of escape in January of 2010. That notice of escape initiates the engineering investigation between Boeing and BAE, in particular, the BCA engineering group. BCA in February initiated a suspect discrepancy report that indicated that there were no safety

concerns identified with that part and may require correction during the service life. So at that point in time, that was the overall assessment of the part.

Chairman LEVIN. So that you knew it was a suspect counterfeit part, but you did not think there was a concern about that at that time.

Mr. DABUNDO. I am not aware if at that time it was a suspect counterfeit part or a nonconforming discrepant part.

Chairman LEVIN. Well, why would it have been a nonconforming part? Was it not tested?

Mr. DABUNDO. I do not know the details. I am sure there was an ATP, a test that is done prior to delivery of the part to Boeing, but at the time they were doing the engineering investigation as to the cause of the failure that occurred initially in the BCA factory in December of 2009.

Chairman LEVIN. Now, before you go on, the notice that I think you referred to in January 2010 from BAE said that the parts show, quote, signs of resurfacing. This is in tab 26, by the way—signs of resurfacing, repainted metal tabs, bent leads, peeling coating. And they said that the chips were, quote, unacceptable for use and that BAE Systems recommends replacement of the suspect components. That is what Boeing was told by BAE. Is that not enough to test it to see if it is a counterfeit?

Mr. DABUNDO. Well, that was enough to initiate the engineering investigation that ensued by both the BCA and the BAE engineers.

Chairman LEVIN. And Boeing is BCA. Right? It is part of Boeing.

Mr. DABUNDO. Boeing Commercial.

Chairman LEVIN. I would just as soon use the term “Boeing.”

So Boeing then said that what? According to tab 27, it may have a somewhat lower reliability. Right? So you got your sub saying it is unacceptable for use. You have got your own engineers believing it may be less reliable. That is tab 27. And then, nonetheless, you do not do anything.

Mr. DABUNDO. I think, sir, the pertinent information that goes with that is in June 2010 when BAE did issue the final service bulletin that came out of the investigation, it indicated that there could be a long-term reliability concern, that it was not a safety issue, and said to do the rework that was provided in that service bulletin at customer convenience and customer option. And in coordination with BAE, the BCA final suspect discrepancy report, which came out in July 2010, indicated that there was no action required and that the part could be repaired on an attrition basis.

Chairman LEVIN. So you are saying that in June 2010 that BAE said that there was no need to replace the part? They changed their mind from January of 2010 when the notice to Boeing said that BAE Systems recommends replacement?

Mr. DABUNDO. Their verbiage in the draft service bulletin that was—or I am sorry—the final service bulletin that came out in June of 2010 indicated it was a long-term reliability concern and do at customer convenience/customer option.

Chairman LEVIN. “Do” Is that the word?

Mr. DABUNDO. Do the rework that was defined in that service bulletin at customer convenience/customer option.

Chairman LEVIN. And the customer's option was not to replace it.

Mr. DABUNDO. Correct.

Chairman LEVIN. And then you decided apparently—in tab 28, Boeing decided priority critical. So you changed your mind. Is that correct? Take a look at tab 28.

Mr. DABUNDO. I am familiar with—

Chairman LEVIN. It is suspected that the module may be a reworked part that should not have been put on the airplane originally and should be replaced immediately.

Mr. DABUNDO. Right. So that message—

Chairman LEVIN. What changed between July of 2011 when you decided that you would just, you know, go with it I guess? You were supposed to give the customer the option, but who is the customer here?

Mr. DABUNDO. In that particular case, the customer was BCA, Boeing Commercial Airplanes.

Chairman LEVIN. And did they give their customer—did the Government ever have the option of replacing this part? Was the U.S. Government, which was also a customer—was it given the option of replacing this part? Were they notified of the part?

Mr. DABUNDO. They were notified in August of 2011.

Chairman LEVIN. The Government was notified.

Mr. DABUNDO. The Government was notified.

Chairman LEVIN. By?

Mr. DABUNDO. By Boeing via the message that you were quoting.

Chairman LEVIN. Until then—so it was a year and a half later now—was the Navy notified for that year and a half?

Mr. DABUNDO. Not to my knowledge, and the rationale for that was the final disposition that came out of BCA Engineering who were the qualified folks to make the disposition on that type of nonconformance was that there was no action required and the part could be repaired on an attrition basis.

Chairman LEVIN. But the customer was supposed to be notified and they were not for a year. Right? Is that correct?

Mr. DABUNDO. No, sir. The way that the—

Chairman LEVIN. Let me go through the chronology. The Navy was notified on August 17th, 2011. Right?

Mr. DABUNDO. Correct.

Chairman LEVIN. This part was discovered by Boeing in January of 2010. Right?

Mr. DABUNDO. Yes. That is when Boeing was—

Chairman LEVIN. The customer was not notified till August 2011, and that is the Navy. That is the facts. Right?

Mr. DABUNDO. Correct.

Chairman LEVIN. How do you justify that? You got a critical part here which by your own notice is critical, but they were not notified for a year and a half after it was suspected there would be deficient defective, and as it turns out, a phony part. How do you justify the year and a half?

Mr. DABUNDO. So again, the way that our commercial processes work, there is notification made to the end customer, which in this case would be BDS and the Navy, if there is a safety concern or a functionality impact. In this case with the IDM, there was not

a safety concern or a functionality impact associated with the non-conformance, and so the philosophy that they use in the commercial industry is that the notification occurs when there is an actionable piece of action that goes to the maintenance departments.

Chairman LEVIN. When there was a notification in August of 2011—

Mr. DABUNDO. Right. So that notification came, I believe, via awareness to this that came through the Navy talking to the committee and then the committee talking to BDS. And so that—

Chairman LEVIN. However it came, your notice says that the part may be a reworked part that should not have been put on the plane originally. Is that true?

Mr. DABUNDO. That is what that document says.

Chairman LEVIN. Is that a Boeing document?

Mr. DABUNDO. That is a Boeing document, and if you go through the details of that document, there is conflicting wording in the message that you are quoting. In the first sentence, it says replace at next available opportunity, and then in the second sentence, it says replace immediately. And with that confusing language, we did go back and verify with the cognizant engineering group, the experts, BCA in this particular instance, that there were no safety concerns. It was a long-term reliability issue. Their recommendation was to repair on attrition, but because of the concerns raised by the customer, we decided to issue that message to drive a maintenance action to move forward and remove and replace that part.

Chairman LEVIN. So you do not agree that a problem which has not yet appeared and may be a long-term problem represents a safety concern.

Did you hear the general today tell you that just because there is a long-term problem, you just do not know when that term is going to occur? You do not know when the axe is going to fall. You know that it can meet a current test, but you do not know for how long. And if it is counterfeit, it could fail at any time. And so the fact that it meets a current test, if it is known to be counterfeit, which you guys knew, is not a reason to allow a part to stay in a plane because it may not fail. It may fail but it may not fail. You know, you are kind of shooting the dice with the mission and the lives of our people here. So did you hear what the general said about your approach that long-term means you can do this even though it is a counterfeit with all the problems of counterfeit parts and the likelihood of failure sooner?

Is it Boeing's position that you are just going to continue the way you have been going and you are not going to replace counterfeit parts?

Mr. DABUNDO. We evaluate every nonconformance on a case-by-case—

Chairman LEVIN. Including counterfeits.

Mr. DABUNDO. It is a subset of nonconformance. Suspect counterfeit parts is a subset of nonconformance.

Chairman LEVIN. Right.

Mr. DABUNDO. We have processes that have been used on our products. We have experts who execute those processes. We rely on those folks to make the judgment calls with respect to these situations.

Chairman LEVIN. Now, the Navy told Boeing on October 31st, 2011 that, quote, any counterfeit material received is nonconforming material and shall be immediately reported to the Government. Do you believe you have a contractual obligation to report counterfeits to the Government immediately?

Mr. DABUNDO. If there is a safety or a functionality concern, we would report that to the Navy.

Chairman LEVIN. Only if in your judgment there is a safety concern, which you do not think there is if it is long-term and you do not know when the axe is going to fall. So if you make a judgment it is not immediate, it could happen next month, it could happen the month after, we do not know when it is going to happen, but you know it is counterfeit. You do not feel you have an obligation to immediately report that to the Government.

Mr. DABUNDO. I will just again reiterate the processes that we use.

Chairman LEVIN. No. I want you to just tell me whether Boeing believes that you have got an obligation, as the Navy says in their letter to you of October 31st, to immediately report to the Government any nonconforming material. Period. They do not say whether in your judgment it is a safety concern. They say any counterfeit material received is nonconforming and shall be immediately reported to the Government. You are saying, well, we are not going to follow that requirement if we in your judgment believe it is not an immediate safety concern. So that is my question.

Mr. DABUNDO. That statement does not flow from our contractual documentation.

Chairman LEVIN. And until it does, you are not going to abide by it.

Mr. DABUNDO. No, sir.

Chairman LEVIN. Pardon?

Mr. DABUNDO. We abide by that for safety-related issues.

Chairman LEVIN. Only if in your judgment it is safety-related, and if it is a future safety problem and not a current one, in your judgment, you are not going to do what the Navy says that you must do which is to report any counterfeit material immediately to the Government. You just disagree with the Navy.

Mr. DABUNDO. Sir, we received this letter a week ago, and we are actively looking at the statements that they have made. Our plan is to engage in discussions on this letter with them to really make sure we fully understand where they are coming from. And our track record on the program has been to work with the customer through these types of things, and I believe that we will do that in this particular instance.

Chairman LEVIN. Well, let me tell you where we are coming from. There is no justification—no justification—for not notifying the Government when you know there is a counterfeit. In fact, I think by law you are required to do that, by the way. I think we have a system for it. In any event, you got a customer here, a pretty good customer. It is the Navy. The Navy has told you that they interpret your obligation contractually to notify the Government when you have reason to believe that material is counterfeit, and you got to report it to the Government. I would think just in terms

of good business practice that you would say, okay, we are going to report that to the Government.

Now, we are going to try to change the law so that it is not going to be up to you as to whether or not something represents a safety concern or not. That has got to be up to the customer, in this case the Navy, because it cannot be your unilateral decision that, well, this is not necessarily an immediate safety problem in our judgment. You know, the axe can fall months from now. We do not know. And we will replace it during our usual service process. It is not good enough. You got customers here, and the customers ultimately are the men and women in uniform. But the Navy and the other services represent those folks, and if they say that you have an obligation to let them know immediately of counterfeit parts, from a pure business practice I would think you should do that.

Now, the contract with the Navy includes a requirement, section 52.211-5, that used, reconditioned, or remanufactured supplies may be used in contract performance if the contractor has proposed the use of such supplies and the contracting officer has authorized their use. Did you ask the contracting officer here to authorize the use of counterfeit or used parts?

Mr. DABUNDO. No, sir. And that particular clause is something that is explicitly required of us as to not be flown to commercial end items, and we did not.

Chairman LEVIN. It does not apply you are saying? That did not apply?

Mr. DABUNDO. For the commercial end item, it did not apply.

Chairman LEVIN. For commercial. This is military.

Mr. DABUNDO. I am sorry. What is the question?

Chairman LEVIN. This is commercial. You are saying it does not apply in your commercial contracts?

Mr. DABUNDO. Yes, sir. As I stated in—

Chairman LEVIN. But this is a military contract.

Mr. DABUNDO. The contract between BDS and the U.S. Navy is a military contract. We obtain the P-8 airframe from Boeing Commercial as a commercial end item.

Chairman LEVIN. What does that have to do with what you supply the Navy? It says here the Navy contract with Boeing has a requirement that you must propose the use of used or reconditioned or remanufactured supplies and you must be authorized to do that. You were not given authority here.

Mr. DABUNDO. Yes. And the way that the FAR's direct us to implement that commercial contract, they state that we shall rely on the existing quality system as a substitute for compliance with the Government inspection requirements and the clause that you are referring to. And so—

Chairman LEVIN. You shall comply with the current contract—with the current what system? Read that again. You shall comply with the current.

Mr. DABUNDO. We shall rely on the contractor's existing quality system, in this case our commercial quality system, as a substitute for compliance with Government inspection requirements.

Chairman LEVIN. And that is unconditional. So in your contract, it said they are going to rely on your own quality system.

Mr. DABUNDO. The existing commercial quality system. The difference in the commercial quality system is they do not notify customers of nonconformance unless there is an explicit maintenance action to be taken or there is a safety concern. And they do that. They intentionally filter out nonactionable messages so that it is clear when there is an action to be taken by the maintenance department.

Chairman LEVIN. The P-8 is built in a facility of Boeing which is apparently been certified to aerospace standards, the number being 9100B, which is a widely adopted quality management system for the aerospace industry. I think that is the one you are referring to.

The standard states that nonconforming material—that is surely the counterfeit parts in the P-8—shall not be used, quote, unless specifically authorized by the customer if the nonconformity results in a departure from the contract requirements. And the contract requirements here require new material.

Mr. DABUNDO. In this instance—

Chairman LEVIN. Therefore, you cannot rely on your aerospace standard 9100B.

Mr. DABUNDO. I think the PC700 is really the FAA approval that enables us to use the quality system.

Chairman LEVIN. And that quality system allows you to use used parts—is that what you are saying—without authority from the customer?

Mr. DABUNDO. It allows us to disposition all nonconformances, and as I mentioned, the process basically provides information to the end user when there is an action to be taken.

Chairman LEVIN. And you are saying that the existing commercial rules allow you to use used material without notice to the customer.

Mr. DABUNDO. They allow us to use our existing quality system which does not require notification.

Chairman LEVIN. If that is the situation, number one, I think the Navy is going to be pretty shocked to hear that you are not going to let them know about counterfeits.

And second, we are going to change it. I mean, if that is currently—despite what the Navy says, you are obligated to notify them of nonconformities, including counterfeits, the Navy is wrong in their letter to you, and if you want to ignore a customer like the Navy, go your own way, and argue that, we are going to change it by law. We have to do it.

Now, do you know whether we paid full price for these used parts?

Mr. DABUNDO. Yes. BAE is covering the cost of replacing those parts.

Chairman LEVIN. All right. But did we pay full price originally for these parts?

Mr. DABUNDO. I do not know.

Chairman LEVIN. Let me read something that Xilinx, which is the part maker has to say about the part here. I think this is the best answer to your comment that if you decide unilaterally that you are going to replace the parts through attrition, that that is a safe way to proceed. Here is what Xilinx, who is the manufacturer

of the real parts, has to say about these anomalies and about the risks of using them.

Number one, that the devices are of dubious origin. These cases pose a significant reliability risk. There are many potential damage mechanisms that could have affected the devices. Some of these could be catastrophic. Others may create a damaged mechanism that is latent for an undetermined amount of time. The combination of these events calls into question the integrity of the devices. Though the devices may initially function, it would be next to impossible to predict what amount of life is remaining. That is the company that made the original parts. It is impossible to predict what amount of life is remaining—and then they finished—or what damage may have been caused to the circuitry.

Does that trouble you to hear that?

Mr. DABUNDO. Sir, I am not a reliability expert.

Chairman LEVIN. Well, just as a citizen who cares about men and women in uniform, does it trouble you that the original parts maker here says they do not know how long this part is going to last if it is a counterfeit part? It is impossible to predict what amount of life is remaining. Some of the risks could be catastrophic and so forth. Does that not just trouble you kind of as a citizen to—

Mr. DABUNDO. I am a concerned citizen and I am very concerned about the counterfeit parts problem. In the case of the IDM, there were people with expertise both at BAE and Boeing who evaluated that part. Also, in consideration, that part is not a safety-critical item on the P-8 or on the commercial 737.

Chairman LEVIN. The Xilinx part? They are wrong about—

Mr. DABUNDO. The ice detector module.

Chairman LEVIN. They are wrong about their own part?

Mr. DABUNDO. I am talking about the ice detector module as a unit on the P-8.

Chairman LEVIN. Are you talking about what Xilinx is referring to, or do you not know?

Mr. DABUNDO. I am not familiar with the Xilinx—

Chairman LEVIN. With that particular part that they supply on the P-8. You are not familiar with the Xilinx part on the P-8.

Mr. DABUNDO. No. I believe that is provided to BAE or one of their sub-tiers.

Chairman LEVIN. And you do not think that that part got into the ice detection module?

Mr. DABUNDO. I do not know.

Chairman LEVIN. If it did, would that trouble you what I just read?

Mr. DABUNDO. If it did, it would trouble me and we would want our engineering experts to assess that part and the associated module and make a disposition on it to ensure the safety of the aircraft was maintained.

Chairman LEVIN. Double check with your engineers and get back to us, will you, as to whether the ice detection module is a safety issue or not?

Mr. DABUNDO. I have, sir.

Chairman LEVIN. And they do not think it is a safety issue?

Mr. DABUNDO. That is correct.

Chairman LEVIN. Why do you think the Navy puts these modules there if it is not a safety issue? Why are we paying money for an ice detection module if it does not relate to the safety of the plane?

Mr. DABUNDO. It has got a functionality that is not a direct safety impact. And sir, they did evaluate the reliability aspects of the module and its failure mode and effects and determined that there was not a residual safety concern and recommended replace on an attrition basis.

Chairman LEVIN. No, I understand all that. You repeated that a few times. I am just asking you why are we buying the ice detection module if it is not a safety issue, if it is not for the safety of the plane and the pilot and the crew? Why are we laying out all this—

Mr. DABUNDO. It has a function—

Chairman LEVIN.—to Boeing. Why are you taking our money?

Mr. DABUNDO. The ice detection module does have a function that is not safety-related.

Chairman LEVIN. What is it? What is it for? Just to help steer the plane? I mean, what is it for?

Mr. DABUNDO. It gives the pilot an indication if there is ice building up on the exterior of the airplane.

Chairman LEVIN. And does an ice buildup create a safety issue? Or do your engineers ice buildup does not create a safety issue?

Mr. DABUNDO. I am not an expert in that system, sir.

Chairman LEVIN. You say your engineers have said that ice buildup is not a safety issue.

Mr. DABUNDO. They have stated that the ice detector module nonconformance did not create a safety issue.

Chairman LEVIN. Which means in your understanding that ice buildup is not a safety issue.

Mr. DABUNDO. I cannot make that claim. I am not a qualified icing engineer.

Chairman LEVIN. Are they making that claim?

Mr. DABUNDO. I do not know. I did not ask that explicit question.

Chairman LEVIN. I would suggest you not make these decisions, and you are not allowed to make these decisions unilaterally. You have got to notify the Government when you have counterfeit parts, and if you think you do not under existing contracts or under existing laws, then you are either wrong, or I think it is bad business to make the argument, or we are going to change it, because one of those three things, it seems to me, has got to be the case.

Mr. DABUNDO. Sir, we are looking at the counterfeit parts issue across all the divisions of the company and implementing policies that will help detect and control those parts.

And I will say we read the Navy's letter to us loud and clear and we will engage with them, as we have done in the past, to have discussions and really understand where they are coming from and what we collectively need to do to address those concerns.

Chairman LEVIN. Well, it does not sound here like you got a loud and clear message at all, to me. I mean, you say that it is a loud and clear message. I thought it is a loud and clear message too, but I do not think it has been received, other than you are now saying it is received, from anything you have testified to earlier. It just

seems to me that you are trying to defend something which is indefensible.

Mr. DeNino, let me get back to you, if you would. When you interviewed the committee staff, staff asked why it is important for L-3 to prohibit the purchase of refurbished parts for use in defense systems. And your answer was, quote, because of the risk, the associated risk. Plain and simple, the risk if that part isn't going to function the way it is supposed to.

Now, then we asked L-3's chief engineer for the C-27J program why they had not recommitted immediately to removing and replacing the counterfeit parts on the C-27J, and he said L-3's acceptance testing process would show whether a part was functional or not.

Now, given the risk that you cited, should L-3 not offer to immediately replace suspect counterfeit parts in the display systems that it sold to the military?

Mr. DENINO. L-3 did offer to replace the parts. We have provided notification to the customer, and we are working with the customer to replace the parts. It is not a question of will we. It is a matter of when and how.

Chairman LEVIN. When did you tell the military again?

Mr. DENINO. I want to clarify that you are talking about the device on the C-27J.

Chairman LEVIN. Right.

Mr. DENINO. And this was the notification to the customer that took place on or around September 19th.

Chairman LEVIN. And you are waiting to hear back from them?

Mr. DENINO. I just want to clarify that is the question, that is the device you are speaking about.

Chairman LEVIN. Yes.

Mr. DENINO. Okay. Yes. I know that our L-3 Integrated Systems Division is working closely with their customer to work those issues and to take the corrective action. But L-3 has been clear with the multiple people that have been interviewed that we will replace those parts at no cost to the Government, to the customer, and it is just a matter of working through those issues with the customer.

Chairman LEVIN. Okay, thank you.

Mr. Kamath, just a few questions for you. I mentioned in my opening statement that Raytheon manufactures a FLIR, an infrared system that is used on the Navy's SH-60B helicopter for missile targeting and night vision. The committee's investigation uncovered, as I mentioned, a suspect counterfeit electronic part in three FLIR's provided to the Navy. We tracked the counterfeit through this maze of subcontractors and parts suppliers all the way back to a company called Huajie Electronic Limited in Shenzhen, and this supply chain is in tab 1 of the binder in front of you.

Before this investigation, had you ever heard of Huajie Electronic Limited?

Mr. KAMATH. Mr. Chairman, no, I have not.

Chairman LEVIN. Are you surprised that Raytheon's supply chain is as convoluted as this, considering that the parts are destined for a critical system?

Mr. KAMATH. Mr. Chairman, I think I would characterize, given all the testimony we have heard today, it would not surprise me that there was a supply chain that is convoluted, using your words.

Chairman LEVIN. And is that something that we ought to worry about?

Mr. KAMATH. Absolutely, yes, sir.

Chairman LEVIN. I think you testified that Raytheon requires all of its suppliers and subcontractors to purchase parts from the original equipment or component manufacturer or an authorized dealer or to obtain advance permission from Raytheon to purchase from an independent distributor. Is that correct? I think you testified to that.

Mr. KAMATH. That is correct, Mr. Chairman.

Chairman LEVIN. And so you are able then to take risk mitigation measures, additional testing when it knows parts have been purchased from a source that is not the component manufacturer or their authorized distributor. The subcontractor who sold Raytheon the subsystem containing the suspect part failed to seek permission from Raytheon to buy the part outside of authorized channels.

I believe that you talked about your experience prior to being employed by Raytheon, I may say, and seeing factories, huge factories with 10,000 employees that were set up to manufacture counterfeit parts. Is that correct?

Mr. KAMATH. Mr. Chairman, as you have heard with other testimony today, it is my observation. It is what I recall from the time that I visited China, yes.

Chairman LEVIN. And that was before you worked for Raytheon.

Mr. KAMATH. Several years ago and before I worked for Raytheon, yes.

Chairman LEVIN. Now, well, just tell us in your own words. Is it a concern to you and should it be a concern to all of us that counterfeit parts are used in defense systems and that they are coming from China?

Mr. KAMATH. Mr. Chairman, I think our larger concern is that we have counterfeit parts, period, in the—

Chairman LEVIN. Regardless of where they come from.

Mr. KAMATH. Regardless of where it is coming. I think that was made clear by all the panelists today.

Chairman LEVIN. I think we would all agree with you. Most of it comes from China, so that is obviously our primary concern.

But when you were there, did it appear to you that there was any concern about the counterfeiters being shut down by the Chinese Government, or was it open?

Mr. KAMATH. Mr. Chairman, I mean, it is the same recollection I think Tom Sharpe had. It appeared to be the same.

Chairman LEVIN. Open.

Mr. KAMATH. Open.

Chairman LEVIN. Raytheon identified to the committee a counterfeit part that was installed on a system that was sold by Raytheon to General Dynamics. It was intended for the Stryker mobile gun system vehicle. It costs Raytheon \$750,000 to remediate that counterfeit part. And Raytheon has identified a total of 32 counterfeit parts in its supply chain since 2009. Is that correct?

Mr. KAMATH. 32 instances.

Chairman LEVIN. 32 instances. More than 32 counterfeit parts. 32 instances?

Mr. KAMATH. That is correct, Mr. Chairman.

Chairman LEVIN. And do you know how much money this counterfeiting has cost Raytheon?

Mr. KAMATH. Mr. Chairman, we have not calculated the number.

Chairman LEVIN. It is a significant amount?

Mr. KAMATH. I have no way to know, sir.

Chairman LEVIN. Now, does Raytheon report counterfeit parts to GIDEP?

Mr. KAMATH. It is our practice to either issue a GIDEP or to ensure that a supplier issues a GIDEP every time we know that there is a confirmed counterfeit part.

Chairman LEVIN. And does the failure by other companies to report counterfeits into the GIDEP system increase the risk that Raytheon will inadvertently buy counterfeit parts?

Mr. KAMATH. Mr. Chairman, I think this is a larger issue. I think we talked about it today. I think the GIDEP is only as good as its usage by everybody that is a member. I think the consistent usage of GIDEP certainly makes it a better tool.

Chairman LEVIN. And if it is not used by some people and used by others, it is less valuable.

Mr. KAMATH. We do not have the value of getting more information through the system.

Chairman LEVIN. Now, I talked to you, Mr. DeNino, before about whether L-3 reports counterfeit parts that they find to GIDEP. I think your answer was that you do but not 100 percent of the time. Is that fair?

Mr. DENINO. In the past, that is correct.

Chairman LEVIN. But now you are going to do it 100 percent of the time?

Mr. DENINO. We are going to use GIDEP.

Chairman LEVIN. 100 percent of the time?

Mr. DENINO. 100 percent of the time.

Chairman LEVIN. And what about Boeing?

Mr. DABUNDO. Sir, I am familiar with the GIDEP process very top level, but I do not have insight into the detailed workings of that process.

Chairman LEVIN. And do you know whether that suspect counterfeit part in the detection system was put into the GIDEP system? Do you know?

Mr. DABUNDO. I do not.

Chairman LEVIN. It did not, by the way. I mean, we have checked it out. Boeing did not file a GIDEP report, and I think the testimony of our witnesses here is that the failure to file a GIDEP increased the risk that another defense contractor or the Department of Defense may inadvertently purchase a counterfeit part. So I think that is just a fact of life. I mean, would you agree, to the extent people do not use that system, it is less valuable?

Mr. DABUNDO. Yes.

Chairman LEVIN. Mr. DeNino, let me ask you about something in your written testimony. I am not sure it was in your oral testimony. I think it was relative to the C-27J. You appear to explain

the continued use of counterfeit parts by pointing to the screening of L-3's display units through acceptance testing or burn-in. And I am wondering—and I asked this already of Mr. Dabundo—about General O'Reilly's testimony this morning. He told us it is just not enough to hope the parts will be screened out through acceptance testing. Were you here for that?

Mr. DENINO. Yes, I was, sir.

Chairman LEVIN. He said that some counterfeit parts that include the correct die but are actually used parts can pass acceptance tests, be fielded, and result in a reliability risk. Do you disagree with him?

Mr. DENINO. I do not disagree with that statement.

Chairman LEVIN. Let me thank you all. I think you have heard a discussion today about the problem which I think that everybody recognizes as a major problem that jeopardizes the well-being and safety of our troops and the success of their mission. And we are going to act I hope in the next couple weeks on the defense authorization bill.

I have outlined today what my ideas are and I think there is a lot of support for those ideas in terms of we have got to have a certification system in place for parts that do not come from the original manufacturer or their authorized dealer.

We have got to do something to inspect parts from China at the border because they are the predominant source of the counterfeiting and they are obviously not doing anything about it. And I do not want to rely on them to do something about it.

And we also have got to make it clear that where the counterfeit parts end up in a system, that it has got to be the contractor and the contractor's suppliers that have to be responsible for making the corrections. It cannot be the taxpayers of the United States.

And so we would welcome any comment that you have either now or, if you wish, you can make to the committee later about these suggestions. Feel free to do so.

But I think this investigation and the great work of our staffs has shown we got a problem. It is a serious problem. We have an obligation to act, to do something about it. We know that the Department of Defense has been working doing something in the counterfeiting area for a long time, but we are not willing to wait any longer. So we will be asking them to help us to put into amendment form and legislative form the kind of ideas which have been discussed here this morning.

Again, we would welcome any comment that you might have either now or that you might want to submit to the committee in the next couple days.

So let me close by asking any of you if you would like to comment on any of those suggestions at this time.

Mr. DENINO. We will be providing a comment, and I would just like to thank the entire committee for their efforts. This is a critical issue for us, and we look forward to working with the committee going forward. Thank you.

Mr. KAMATH. Mr. Chairman, the same thing here. I think we would like to provide comments as quickly as you would like.

Chairman LEVIN. Well, make it within the next week because this bill could come to the floor within another week.

Mr. KAMATH. That works for us. We will work with your committee staff on this.

Chairman LEVIN. Feel free to do so. Mr. Dabundo?

Mr. DABUNDO. Sir, I am going to provide some input beyond the statement that I made, and we do welcome participating with the committee to help find good solutions.

Chairman LEVIN. Any comments that you might want to make on the legislative ways to change the status quo here we would be happy to look at. But I think you heard a lot of determination on the part of this committee today that—a lot of shock, frankly. Some of this is stunning. It is the only word I could use. Some of the GAO testimony is just absolutely stunning what is available there on the Internet. Phony numbers will be filled. I mean, these counterfeiters will do anything, obviously. They will stoop to anything. They will do anything.

And I know you guys got your hands full in trying, even if you put forth an adequate effort, which I do not think has been the case, but nonetheless, even if you do put forth an adequate effort to screen out the counterfeits from these flood of counterfeits, it is still going to be a challenge.

And so we are going to do everything we can to stymie and stop this at the source. It is going to be a two-track effort on our part, and we will welcome your cooperation with both tracks. We will stand adjourned with our thanks.

[Whereupon, at 3:07 p.m., the committee adjourned.]