

# Virtual panel discussion: Counterfeit electronic components



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## Are counterfeit components rearing their ugly heads in SA?

In the components and electronics industry the term 'counterfeit' is used generically to describe a range of deceits, ranging from simple remarking of components to alter the date codes and/or legitimise scrapped or stolen components to the manufacture of a new component from obsolete or stolen tooling.

"In the past most sectors of the industry have been fairly sceptical about counterfeit electronic components entering the supply network. We reasoned that the complexity of the most desirable components make them difficult to copy and the less complex products would not yield a reasonable financial return for the copier", said UK AFDEC's Adam Fletcher in a recent article.

"However the last six months have forced a rethink as we've seen a significant increase in the number of counterfeit electronic components surfacing for sale in the UK, ranging from capacitors and resistors to DRAMs. According to The Alliance for Grey Market and Counterfeit Abatement (AGMA) ([www.agmaglobal.org](http://www.agmaglobal.org)) based in Fremont, California, up to 10% of technology products sold worldwide are counterfeit, which amounts to \$100-billion of sales revenues.

South Africa has not been immune from this. We have come across some instances where counterfeit components carried the original manufacturer's name or logo, or at least close to the original. Yet the agent of the original manufacturer distributed these in South Africa!

This raises a number of questions on which EngineerIT polled South African component and electronic companies.

## How often has the problem been identified in SA?

The question "is the occurrence of counterfeit electronic components a common occurrence in the industry?" drew a mixed response. Some said they believe that it is happening, others were more outspoken, yet others have not experienced the problem.

**Hannes Taute, Avnet:** We don't see a huge number of these parts surfacing in the industry. Customers have however burned their fingers buying counterfeit parts out of the East. We have had less than 10 such occurrences over the last 10 years.

**Deon Landman, Conlog:** I have seen it twice in 21 years, not common but difficult to detect as well.

**Saro Murabito, ADEC:** Internationally, this is a major problem. AFDEC in the UK is continually releasing press documents on counterfeit products.

**Roland Hill, CBI:** On average we encounter this once every two years. The consequences often take a number of years to fully resolve.

**Dennis Rodger, UEC:** In practising the defined trading model, has not suffered any counterfeit component occurrence in the past decade.

We are aware of instances that have occurred in the industry. Typically, investigation would indicate that trading principles had been breached, and that the situation could have been avoided.

It has been noted that counterfeiting is not prevalent in sophisticated integrated circuits ("IC") products, or special-type components. Occurrence was typically identified in capacitors, diodes, transistors, inductors and some linear and logic ICs. History reflects that the 1980s and much of the 90s were when the most prolific instances seemed to occur.

It is generally acknowledged in the industry that there is an active component counterfeiting market, and that they have become far more sophisticated.

## How do you identify counterfeit components if they look the same as the original components?

**Hannes Taute, Avnet:** The markings are sometimes not 100% straight. Some of the counterfeit parts do however look 100% original – the problem is more with the functionality.

**Mike Lee, AAD:** Mostly identified by visual inspection or electrical test by customer if physical reproduction is accurate. Supplier screening is critical.

**Deon Landman, Conlog:** Very difficult, only if we have failures and investigate further.

**Steve Stafford, EBV:** No need – we are a franchised distributor and when buying from the manufacturer authenticity is inherent.

**Saro Murabito, ADEC:** The counterfeit products are often done to the finest details, where sometimes it is impossible to determine they are counterfeit with the naked eye.

**Roland Hill, CBI:** Despite our detailed material specifications and insistence on stringent incoming inspection, all of our known occurrences have propagated onto production lines where they have been detected by statistical yield loss variations or performance test variations on complex, custom-built test equipment.

**Dennis Rodger, UEC:** It may be difficult to identify these forms of counterfeit components as there are many small logos using circles and other symbols, which are not easy to identify at first glance. Logos using designated letters such as "ST" can also be difficult to identify or distinguish on small components.

The reliability of the supply source is the key to the credibility of the component, combined with incoming quality assurance procedures.

UEC has not experienced this specific problem before. The failure of the component in circuit will be the easiest way to find this. But it will be too late!

**What about products that are not counterfeit but their trademark is easily confused with a well-known trade mark?**

**Hannes Taute, Avnet:** Customers need to know what they are using or buying

**Deon Landman, Conlog:** Haven't come across any.

**Steve Stafford, EBV:** Where a specific brand is requested surely the onus should fall on the requester to distinguish between various trade marks?

**Saro Murabito, ADEC:** My opinion is that if they are being sold off as a brand due to trade mark similarity, if the intention is to deceive the purchaser, then it is as bad as selling counterfeit products.

**Roland Hill, CBI:** Our stringent incoming inspection requirements deal with such cases.

**How serious is the impact on manufactured goods, quality, and safety?**

**Hannes Taute, Avnet:** It can be dangerous buying counterfeit parts as they sometimes work but not 100% to spec of the original part. We have not seen any major impact on manufacturing in South Africa.

**Deon Landman, Conlog:** Very serious, the seriousness depends on the application, we treat it as severe.

**Steve Stafford, EBV:** The two obvious impacts are:

The manufacturer is likely to experience serious latent deliveries due to non-conformance that will be identified during the manufacturing phase.

The more serious impact could be a catastrophic failure in the field requiring costly recalls or in critical applications the cost could be more than just financial.

**Saro Murabito, ADEC:** This depends on the type of equipment being manufactured, as the damage could result in either loss of monetary value, reputation, or in some products, could result in injury, or loss of life (eg automotive safety equipment).

**Roland Hill, CBI:** Significant and serious. If detected prior to field deployment, then the work-in-progress rework costs easily run into hundreds

of thousands of rands. If not, then field recalls and customer liability claims can quickly reach millions of rands. Additional damage to brand integrity is long-term and substantial. The impact on safety must be mitigated at design time by failure mode effects and criticality analysis.

**Dennis Rodger, UEC:** On all three counts the effect can be catastrophic. As a global supplier of high quality consumer products, the UEC products are delivered far and wide and we are required to meet defined specifications of quality and safety. Accordingly the recall and repair costs would be prohibitive.

Therefore our choice of vendor is not negotiable, it is critical that we get exactly what was ordered. We insist on this and we will seek punitive recourse if it is breached. Our view is that the "grey" market is not the place to be if you supply a quality product.

**How does a reputable component supplier guard against counterfeit components?**

The most common reply was "Partner with reputable supply partners"

**Hannes Taute, Avnet:** As far as possible we only buy from reputable components manufacturers. Don't just buy components from anyone!

**Deon Landman, Conlog:** They need to ensure they buy from the manufacturers and not buying houses to reduce the risk.

"By sourcing through authentic channels.

**Saro Murabito, ADEC:** Products purchased through an authorised distribution channel naturally carry the least risk of this happening, and if it should occur, there is a channel through which the matter can be investigated.

**Roland Hill, CBI:** A contractual process with stringent vendor audit criteria should be in place for all approved sources of materials.

**Dennis Rodger, UEC:** This is a very difficult problem for manufacturers. Firstly, it is an embarrassment to them. Secondly, they investigate the date and codes on each component and do a traceability investigation. Most cases are solved by this method and the default is exposed, as they will identify exactly to whom they shipped the goods to.

Reputable manufacturers, at great cost, follow-up a number of cases with, we understand, little success.

**Do you or do you expect the importer to carry quality checks before releasing a batch to the market?**

**Hannes Taute, Avnet:** As an ISO9001 company checking quality is par for the course. You do however need to trust what you are receiving

from your supplier. You cannot unpack every last component – especially components on reels. Suppliers will have quality checks in place as well. Reputable suppliers will be able to issue a letter of conformance for any goods supplied.

**Mike Lee, AAD:** Only visual inspection possible by distributor

**Deon Landman, Conlog:** It is difficult to expect that, they will not have the equipment and expertise to carry out a full range of tests on all component types brought in.

**Steve Stafford, EBV:** Yes.

**Saro Murabito, ADEC:** I assume every goods receiving department will have their own inspection policies, checks and balances, via their quality standards to address this matter, and perhaps the level of inspection does vary from one supplier to another.

**Roland Hill, CBI:** If the importer can't warrant that a material is sourced and tested from a reputable manufacturer, and shipped without interference, then they must perform their own conformance testing and compliance certification.

**Dennis Rodger, UEC:** Due to the volume of products it is not always possible to undertake quality checks of all components. Batch testing is a possibility.

Typically manufacturers rely on the specification of the component and that the component delivered is as defined and ordered from the reputable supplier.

With regards to the importer, (usually a distributor), we do not know of any supplier that carries out quality checks. The general check when receipting a shipment is that the part ordered is the product marked on the box. Broken shipments are the problem and even if this is undertaken, there is no physical method to undertake tests unless sophisticated test equipment is purchased. The question is; how can a quality assurance operator catch-out a crafty counterfeiter? How will he differentiate a genuine logo against a forged one?

**Should ADEC become more involved in controlling the industry and blacklist any company that is guilty of supplying counterfeit components? Or is there another organisation more suited to deal with the problem?**

The industry had various views ranging from "I don't think that ADEC can control who sells what. Every business is free to trade in whatever goods they want to. It is more for customers to be aware of the problem and know what they are being supplied" (Hannes Taute), to "ADEC should blacklist companies guilty of deliberately supplying counterfeit products. SARS/Customs should control and or take action against counterfeit importers" (Mike Lee).

**Deon Landman, Conlog:** I don't know if ADEC is the right group to do this, but it would be nice if there was a common body with whom we lodge our concerns and have a lookup table for reference. This will help us to limit our risk.

**Steve Stafford, EBV:** It would be a good idea, however we might find the ADEC membership rapidly declining. Ultimately the onus has to rest with the manufacturers' purchasing policy with respect to purchasing through legitimate channels.

**Saro Murabito, ADEC:** ADEC is a self funded non-profit organisation, whose aims are to address the needs of our industry. As such, ADEC can create a set of guidelines for its members.

There is no obligation on distributors to become ADEC members, nor is there any obligation on the users of such product to become members.

The onus possibly needs to fall on the purchasing teams of the various companies to ensure that goods are purchased through a reliable authorised channel, in order to minimise, the chances of this happening.

**Roland Hill, CBI:** To my knowledge, ADEC is the ideal body to administer a blacklist of discredited suppliers. That they have not done so over the past years is highly disappointing.

**Dennis Rodger, UEC:** UEC is not in a position to express a view on the ability of ADEC policing defaulters in the industry. Certainly if they are members of ADEC, ADEC needs to distance itself from such members. A list of defaulters needs to be known so that the industry is made aware of them in order to avoid them.

We do not recognise that a watchdog organisation can do such work, and if there is one it would have to rely on inputs from the entire industry, and release the facts uncovered.

#### Other comments

**Deon Landman, Conlog:** As a rule we do not source and we do not let our suppliers source from buying houses or unapproved suppliers. Schneider and Conlog have a very strict sourcing strategy we use world-wide to limit the risk. In the event of the component being totally unavailable from the original source, we will run tests on the components to validate the technical performance versus specification before using them.

**Dennis Rodger, UEC:** Users of components need to be critically aware of the credibility of the supplier of such components and may consider investigating the origin of the source of such components by means of on-sight audits.

Supplier recourse is essential and a policy has to be adopted to protect a purchaser. The purchaser needs to be able to follow the traceability trail, so as to be satisfied that the components sources are legitimate. This should never be negotiable, irrespective of any supplier.

Another area of concern is the proliferation of emerging eastern manufacturers, particularly in India, China and Taiwan, as well as established markets such as Korea, Singapore, Philippines, Indonesia and Thailand. While there is acknowledgement of many quality manufacturers, there is industry concern that many are questionable. Selection of such a potential supplier is a minefield and this has to be thoroughly investigated, before making a decision. Distribution operators need to be assured of to whom they offer their products, and do their own investigations.

In conclusion, the purchaser of components MUST be responsible for their choice of vendor.

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