



# Piracy in electrical and electronic products

**Anti-counterfeiting best practice and strategies**

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# Why fight product piracy?

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## **Huge global business**

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Counterfeiting and piracy have grown into a global business estimated to reach USD 991 billion by 2022, according to a 2017 report prepared for the International Trademark Association (INTA) and Business Action to Stop Counterfeiting and Piracy (BASCAP). More than half of the products move through international trade channels.

## **Electrical goods: 2<sup>nd</sup> place now**

—  
Counterfeit electrical and electronic products now occupy second place after pharmaceuticals. From components such as fuses, cables and circuit breakers to household equipment, professional work tools and automotive and aviation spare parts, nothing is safe from counterfeiting. While the appearance and packaging can be very convincing, the products themselves are often sub-standard and may represent a severe safety hazard, causing accidents and costing lives.

## **Financing organized crime**

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And while counterfeiting may sometimes be perceived as a trivial offence, it can be directly linked to international organized crime, and help finance other criminal activities.

## **Majority of consumers purchase fake products**

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According to a global study commissioned by the International Chamber of Commerce (ICC), 80% of consumers in the developed

and developing world regularly purchase counterfeit products with little awareness, remorse or fear of consequences, including potential health and safety risks to themselves or their family. They are usually unaware of the very real risks to their health and livelihood, but are likely to change their behaviour when informed of the dangers.

## **One fake component = huge financial liability**

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When counterfeit electrical devices, components and spare parts enter manufacturing supply chains, they can add fire, shock and explosion risks that may cost workers their lives, cause serious property damage and involve unpredictable financial liability.

One fake component can void guarantees for entire systems and installations, resulting in severe financial losses and liabilities. Manufacturers, installers, specifiers and employers can be held responsible for incidents and accidents linked to counterfeit merchandise.

Counterfeit electrical products don't need to comply with performance and safety specifications; they are not tested or approved.

Counterfeit aviation parts for example pose a serious risk to the safety of military, civil and commercial aircraft.

## **Improve inventory management and inspections**

—  
The infiltration of counterfeit parts into supply chains can often be avoided through improved inventory management, procurement procedures, and inspection protocols. In aviation for example, IECQ (IEC Quality Assessment System for Electronic Components) offers a particularly powerful and successful tool, the IECQ aerospace, defense and high performance scheme (IECQ ADHP), to help industry combat counterfeit electronic components.

Original equipment manufacturers (OEMs) and service facilities have other IECQ schemes at their disposal to address counterfeit issues. The IECQ counterfeit avoidance programme (IECQ CAP) used by electronic component distributors, subcontracts and assemblers which ensures organizations have processes for managing counterfeit avoidance in the procurement, selection, use and distribution of component product. The IECQ approved process-distributors scheme (IECQ AP-D) used by electronic component distributors and original component manufactures (OCMs) ensures organizations have processes in place in accordance with a declared quality plan which may contain technics and controls like IECQ CAP, e-chain of custody, information security management systems and customer specific requirements, etc., that include and go beyond industry best practice for counterfeit avoidance to ensure distribution through an integral supply chain.

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# The economic impact

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Counterfeit products directly impact the economies where those products are produced as well as those where they are sold.

## **Loss of foreign investment**

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Countries with counterfeiting operations: reputable manufacturers become reluctant to manufacture their products in these countries. In addition to tax losses, these countries lose direct foreign investment and miss out on foreign know-how. In the long run, their reputation results in slower economic development and job losses.

## **Increased social costs**

—  
Countries that receive counterfeit products suffer job losses, missed sales opportunities and lost tax revenues in addition to increased social costs linked to death and injuries. According to the 2017 report from Frontier Economics Ltd<sup>1</sup>, the total international trade in counterfeit and pirated goods is expected to reach USD 991 billion by 2022. These are just a portion of the economic damage that governments and consumers may experience.

## **Destroyed jobs**

—  
Counterfeiting also has a big impact on employment: analysis suggests that, without counting the secondary impact on suppliers and retailers, approximately 2,5 million jobs have been destroyed by counterfeiting and piracy in G20 countries.

<sup>1</sup> *The economic impacts of counterfeiting and piracy*  
[https://www.inta.org/communications/documents/2017\\_frontier\\_report.pdf](https://www.inta.org/communications/documents/2017_frontier_report.pdf)

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# Reduce demand for counterfeit products

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## **Stopping production and sale is insufficient**

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Most efforts by governments and enforcement agencies focus on stopping the production and sale of counterfeit products. However, to fight product piracy, it is equally important to understand the motivations that lead to the purchase of counterfeit products and to reduce demand through increased awareness, especially for electrical products.

## **Why consumers buy counterfeit products**

—  
A study commissioned by the ICC<sup>2</sup> across 42 countries provides some valuable insights.

## **Perceived as harmless**

—  
A large majority of consumers recognize that buying counterfeits is unethical but they feel it is essentially a victimless crime and seldom feel guilty about it. In the absence of obvious penalties against purchasers and sometimes sellers, they perceive counterfeiting to be harmless. They are generally unaware both of the economic impact of their act and the danger to their health.

## **Feeling of empowerment**

—  
Most consumers refuse to call themselves victims of counterfeiting, even if they have a bad experience with such a product. They believe that they control the situation and, in some cases, even feel empowered by their purchase. Generally the reasons for the purchase are lower price and availability but more sophisticated motives can be found in some countries, including a rebellion against the established order or distribution system.

## **Broadly accessible – little control**

—  
In emerging markets, more than half of counterfeit purchases take place in normal stores and consumers don't feel that they have a way to protect themselves against pirated products. Furthermore, even if they had the choice, they might often not have the financial means to afford an original.

## **Impulse purchase**

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Most counterfeit products are purchased on impulse: consumers need the product fast, use it fast and throw it away fast.

## **Risk to health = powerful deterrent**

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Consumers from all countries act according to proximity rules: they care first for themselves and their families, then for their communities and last for their countries. Risks to health and personal possessions are the most powerful deterrents against the purchase of counterfeit products. Consumers change their attitude and purchasing habits when they understand the risks and dangers to themselves, their families and communities. Consumers also look for evidence that government views this as a serious problem which has consequences.

—  
The most credible spokespeople against counterfeit products are local victims (people whose health has suffered).



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<sup>2</sup> *Research Report on Consumer Attitudes and Perceptions on Counterfeiting and Piracy*  
[www.wipo.int/meetings/en/doc\\_details.jsp?doc\\_id=142755](http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=142755)



¥1890

¥1995

DEAL 45PCS  
¥2310

¥2540

MARVEL  
¥3380

MARVEL  
¥3230

MARVEL  
¥3280

¥4300

43PCS 精密ビットセット  
LT-43 ¥1900

ENGINEER  
¥830

ENGINEER  
¥1230

ENGINEER  
¥1890

¥1250

¥2940

¥3160

3mm~6, 8mm

6.5mm/2.5mm 7mm~13mm

ステンレス用コバルト刃 1.0mm~1.2mm

緑黒ドラ  
80-300

ビットドライバー  
H460 H450

trad 6pcs. 六角ビットセット  
trad 6pcs. トルクスロジックビットセット  
777-W10  
H460 H450

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# Steps for fighting product piracy

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Key components in fighting product piracy include protecting your assets legally and through technologies, stricter testing protocols and quality-control practices, and improved communication in the supply chain.

Here are a few concrete measures that should be integrated into a counterfeiting strategy:

## 1. Register trademarks and copyrights

Register trademarks in all countries you sell, manufacture, license or distribute products in. This is essential to protect trademarks and brands. Also, apply for patents and register designs. For details and registration procedures consult a trademark attorney.

## 2. Join trade associations

- International AntiCounterfeiting Coalition (IACC) [www.iacc.org](http://www.iacc.org)
- International Trademark Association (INTA) [www.inta.org](http://www.inta.org)
- Chamber of commerce in your country

## 3. Anti-counterfeiting policy and brand protection programme

By establishing and pursuing an anti-counterfeiting policy and brand protection programme a company is able to provide proof that all due care was taken to limit or reduce counterfeiting and protect trademarks and brands. Together they provide a shield for liability, but also a protection against loss of reputation and adverse public opinion. The brand protection programme and anti-



counterfeiting policy list pro-active measures that are put in place to identify and report fake products. They help limit the negative effects of counterfeiting and reduce reaction time should such an event occur.

Elements to consider include:

- Supply chain processes, inspection, audits and quality control
- Identification and evaluation of risks and threats
- Detection and reporting processes, including handling of counterfeit products

- Overall risk management and adequate response procedures

The policy also needs to address product labelling (including anti-counterfeiting technologies) and training of staff on how to recognize counterfeit products. Furthermore it should provide assistance and training programmes to officials tasked with enforcing seizures of counterfeit products. The latter because only the manufacturer of the genuine product knows whether an item is fake or genuine. Part of this may include the setting up of a product database, online reporting mechanisms, and simple protocols that provide investigators with tips on how to spot fakes.

#### **When fake products are found**

After contacting the relevant law enforcement authorities, consider reaching out to members of a relevant IEC Conformity Assessment System (page 12). They can direct you to one of the national certification agencies and laboratories which might be able to help you set up a testing and inspection programme to avoid future problems, as well as product training for manufacturing staff and law enforcement agencies.

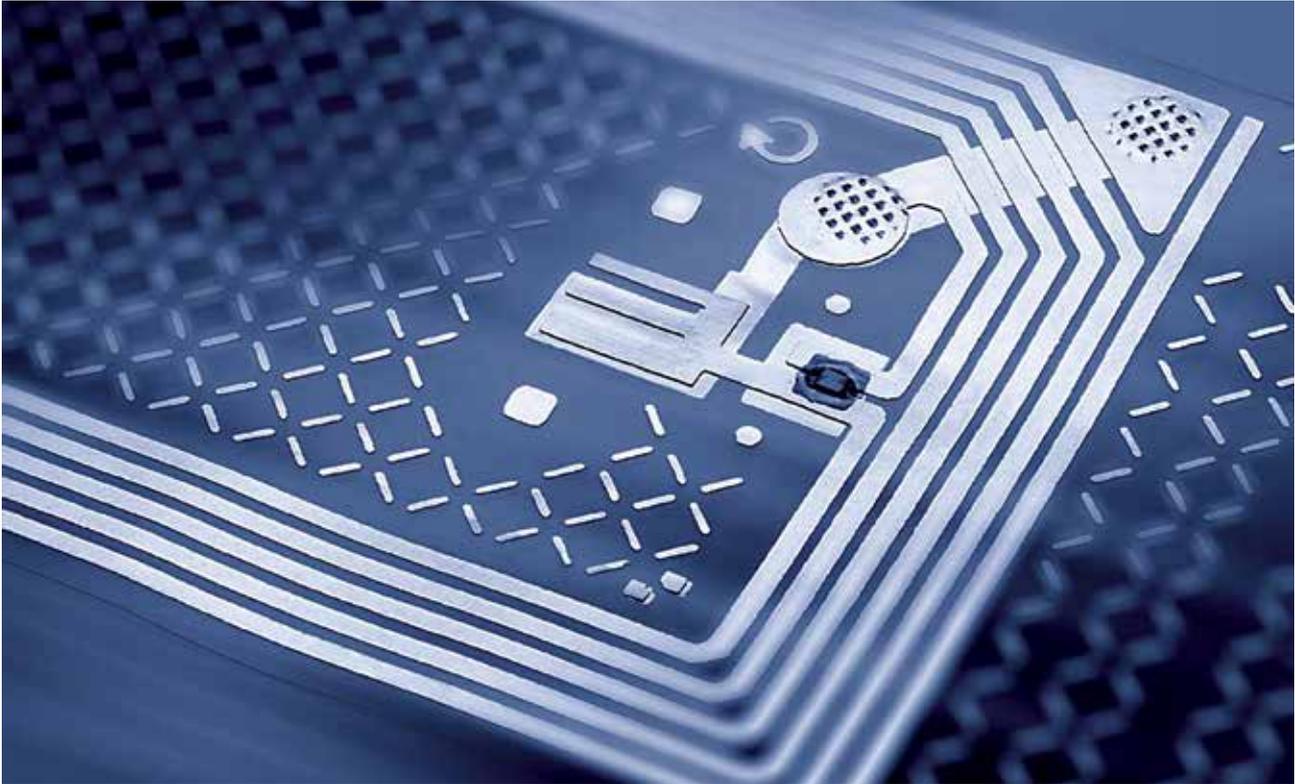
#### **4. Anti-counterfeiting technologies**

There are a number of anti-counterfeiting technologies that can help better protect and authenticate products. And while they can't completely eliminate counterfeiting, they can make it less attractive and less profitable, increasing the level of risk for the counterfeiters.

#### **Embed trademarks in products**

Always try to make your trademark a part of the final product. Avoid labels that can be easily removed and use technologies that are difficult to reproduce.





### Combine several technologies

The difficulty is to find the right technology for the problem at hand. The solution needs to be cost-effective, compatible with distribution channels, customer friendly, resistant and durable. A combination of different product-protection devices usually increases effectiveness.

### Overview of methods

Currently available technologies include miscellaneous printing techniques (micro-printing, invisible ink, layered inks, light- or heat-reactive inks, watermarks), track and trace packaging, including bar codes, radio-frequency identification (RFID), and nano-size taggants, holograms (including both visible and latent images and combinations of RFID and holograms), magnetic stripes, chemical and biological markers.

For the latter, customized pens deposit an identifying liquid on the printed area which produces either a colour change or luminescent reaction to prove authenticity.

### Further support

Contact a member of a relevant IEC Conformity Assessment System to find out what support can be provided for setting up your anti-counterfeiting programme (page 12).

### 5. Market surveillance, quality control, inspection

- Establish classical market surveillance, including at customs and ports
- Obtain and test samples from open markets, websites and auction sites. Make it known that you run such tests
- Keep a database of companies and manufacturers that counterfeit your products
- Send cease and desist letters for every infringement to establish brand and trademark protection measures
- Tighten supply chain, production and delivery path of genuine products
- Establish factory, pre-shipment and port of entry inspections (as counterfeit products sometimes hide in genuine shipments)

Consider involving an IEC Conformity Assessment System member for inspection and testing pre-shipment and at market entry point (page 12).

### 6. Interception and cooperation with law enforcement

Register for customs watch programmes.

Organizations including INTERPOL, WTO, WCO, WIPO and ICC are working closely together to improve international cooperation and border enforcement through increased customs co-ordination and exchange of information and best practices. The IEC and its Conformity Assessment System members concretely support these efforts on the ground through inspection and testing.

# Simple protocol to identify counterfeit products

- Verify the style, layout and quality of printed documentation, packaging and labelling.  
Packaging and labelling are sometimes the most obvious indication that something is wrong.
- Check for strange use of language, grammatical errors, odd layout, unusual print fonts, lack of the certification stamp or label.
- Check test certificates and documentation shipped with goods.

A thorough external visual inspection should also include markings and logos, as well as potential discrepancies between shipping documents and part numbers.

## External visual inspection

- Does the touch and feel of a product seem unusual, is the thickness of a cord off, does the weight or shape seem strange?
- Check quality and accuracy of brand logos (use logo libraries) and verify workmanship of part numbers and date codes: legibility, sharpness, clarity. Trademarked logos that look different from the usual may signal a counterfeit.
- Inspect for evidence of physical alteration: sanding, blacktopping, etc. (acetone will attack many blacktopping materials). Conduct marking permanency test on inked brands (use 3:1 mineral spirits: isopropyl alcohol).



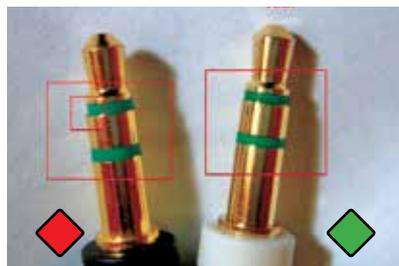
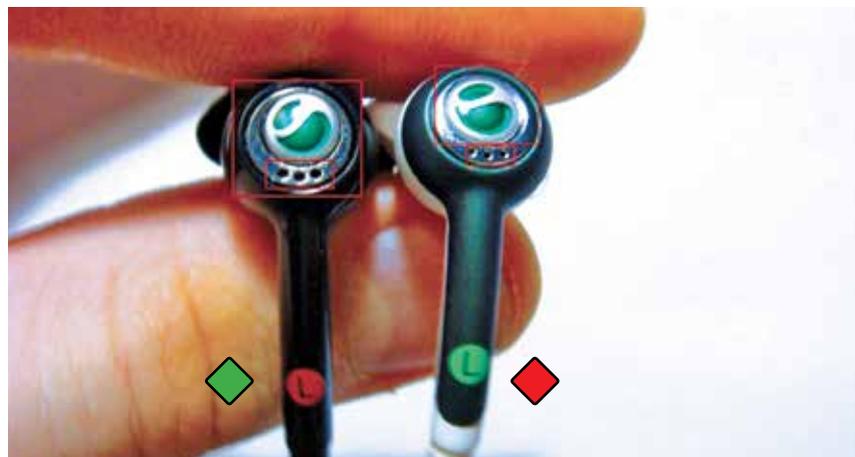
**Fake**



**Original**



© www.thydzik.com



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# At the forefront of anti-counterfeiting measures

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## **Inspection and testing – powerful deterrents**

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While inspection and third-party testing are by far not the only solutions against counterfeiting, they can be very effective tools to police the global supply chain and help uncover counterfeit products before they enter a country or organization.

## **Testing to globally agreed specifications**

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Testing laboratories use International Standards that include commonly agreed performance, safety and quality specifications as the basis for their third-party testing, inspections and controls.

## **Immediate verification**

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IEC Conformity Assessment Systems operate online databases for immediate verification of issued certificates of conformity and/or test certificates in the electrotechnical sector, which also helps to spot fake merchandise.

Most national certification bodies are members of one or several IEC Conformity Assessment Systems. They can provide help and information on organizations that can support you in your anti-counterfeiting efforts. You will find a full list of the members of each IEC Conformity Assessment System via these web links:

- Household, medical and office products and toys: [members.iecee.org/members/overview](http://members.iecee.org/members/overview)
- Equipment used in hazardous areas: [www.iecex.com/information/countries.htm](http://www.iecex.com/information/countries.htm)
- Electronic components, including those for the air transport industry: [www.iecq.org/members/bodies/mb-list.htm](http://www.iecq.org/members/bodies/mb-list.htm)
- Equipment for use in renewable energy applications: [www.iecre.org/members/bodies](http://www.iecre.org/members/bodies)

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# Additional resources and information

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## Anti-counterfeiting organizations

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ACG

Anti-Counterfeiting Group

[www.a-cg.org](http://www.a-cg.org)

IACC

International AntiCounterfeiting Coalition

[www.iacc.org](http://www.iacc.org)

ESFI

Electrical Safety Foundation International

[www.esfi.org](http://www.esfi.org)

GACG Network

Global Anti-Counterfeiting Group

[www.gacg.org](http://www.gacg.org)

INTA

International Trademark Association

[www.inta.org](http://www.inta.org)

OECD

The Organisation for Economic Co-operation  
and Development

[www.oecd.org](http://www.oecd.org)

REACT

The European Anti-Counterfeiting Network

[www.react.org](http://www.react.org)

## Anti-counterfeiting trade agreement

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ACTA

[www.ustr.gov/acta](http://www.ustr.gov/acta)

For further information on IEC Conformity  
Assessment Systems:

→ [www.iecee.org](http://www.iecee.org)

→ [www.iecex.com](http://www.iecex.com)

→ [www.iecq.org](http://www.iecq.org)

→ [www.iecre.org](http://www.iecre.org)

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# About the IEC

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The IEC, headquartered in Geneva, Switzerland, is the world's leading publisher of International Standards for electrical and electronic technologies. It is a global, independent, not-for-profit, membership organization (funded by membership fees and sales). The IEC includes 171 countries that represent 99% of world population and energy generation.

The IEC provides a worldwide, neutral and independent platform where 20 000 experts from the private and public sectors cooperate to develop state-of-the-art, globally relevant IEC International Standards. These form the basis for testing and certification, and support economic development, protecting people and the environment.

IEC work impacts around 20% of global trade (in value) and looks at aspects such as safety, interoperability, performance and other essential requirements for a vast range of technology areas, including energy, manufacturing, transportation, healthcare, homes, buildings or cities.

The IEC administers four Conformity Assessment Systems and provides a standardized approach to the testing and certification of components, products, systems, as well as the competence of persons.

IEC work is essential for safety, quality and risk management. It helps make cities smarter, supports universal energy access and improves energy efficiency of devices and systems. It allows industry to consistently build better products, helps governments ensure long-term viability of infrastructure investments and reassures investors and insurers.



A global network of 171 countries that covers 99% of world population and electricity generation



Offers an Affiliate Country Programme to encourage developing countries to participate in IEC work free of charge



Develops International Standards and runs four Conformity Assessment Systems to verify that electronic and electrical products work safely and as they are intended to



IEC International Standards represent a global consensus of state-of-the-art know-how and expertise



A not-for-profit organization enabling global trade and universal electricity access



## Key figures

171

Members and affiliates

>200

Technical committees and subcommittees

20 000

Experts from industry, test and research labs, government, academia and consumer groups

>10 000

International Standards in catalogue

4

Global Conformity Assessment Systems

>1 million

Conformity Assessment certificates issued

>100

Years of expertise

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# Further information

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Please visit the IEC website at [www.iec.ch](http://www.iec.ch) for further information. In the "About the IEC" section, you can contact your local IEC National Committee directly. Alternatively, please contact the IEC Central Office in Geneva, Switzerland or the nearest IEC Regional Centre.

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