

Track and trace: holograms leading the way to added value

There's no doubt about the growing impact and utility that holograms are having in the battle against counterfeiting, which costs global industry billions of dollars a year in lost revenue and untold damage to brand reputations. But in recent times we've also started to see the added value role that the very latest authentication technology plays in improving supply chain management.

Ian Lancaster, general secretary of the International Hologram Manufacturers Association, looks at the versatility and role of 'track & trace' hologram technology and the way some organisations have embraced it to protect brand and routes to market.

The counterfeiting explosion is being driven by increased industrial globalisation, extended supply chains, the growth of brands, weak regional law enforcement and lenient criminal penalties. Moreover, the impact of the internet as a conduit for counterfeit goods and the impact of high quality reprographic technology have also made it easy and affordable to copy brand packaging.

So, against this backdrop, it's little wonder that the hologram has emerged to become the primary choice for an expanding range of anti-counterfeiting and brand protection applications. The technology's ability to incorporate other data forms and product tracking information is becoming increasingly important, and commercially acceptable, with the added bonus of being able to link on-pack product identification with supply chain management, market enforcement and forensic support services.

New imaging techniques and combinations of other overt authentication technologies with holograms are producing a new generation of optical security devices which combine ease of recognition benefits with significantly enhanced resistance to counterfeits. This enables the identity and distribution of goods to be controlled through an expanded system solution involving security authentication features, tracking mechanisms and investigative services.

Grey Market Challenge

Indeed, the rise of the internet and globalisation is blurring the edges of once geographically-based markets, often impinging upon an organisation's ability to maintain brand image by selling only in premium channels.

The result is a burgeoning grey market economy (where legitimate goods are produced in unauthorised quantities or diverted to a market in which a retailer has no right to sell them) with exclusive, aspirational, often counterfeit products turning up for sale any where in the world from street corner traders in the big cities to small villages in remote provinces.

The grey economy is clearly challenging today's sophisticated, intertwined global market place, threatening revenue streams, eroding margins, damaging corporate reputations, adding extra stress to distributor and retailer relationships and generally opening up the opportunity for service and warranty fraud on a grand-scale.


Tackling the issue typically requires the marking of individual items with a unique serial number or 'license plate'. These can then be tracked through the whole supply chain process from the production line to final point-of-sale.

Armed with the information this facility provides, companies and the anti-counterfeiting agencies that work on their behalf can examine products found in cheap flea markets on the other side of the world, on the premises of an unauthorised retailer or dealer or on a 'fly-by-night' website and pose the question: "How did it get here?" – an important first step in beginning to find out what happened and where the problem lies.

Today's advanced holograms offer beneficial 'track & trace' features which can help users generate unique sequential, encrypted or random serial numbers or identify and mark products overtly or covertly either via special self adhesive labels or directly onto product using a variety of print technologies.

The identity of individual items can be linked to packaging through a unique code, which in turn can be linked to case ID, pallet ID or container ID. The recording of this so-called parent child relationship between unit pack, carton and pallet is the beginning of an electronic pedigree, which allows the item to be tracked throughout the many layers of the distribution chain: from the factory and packaging through distribution to the final user.

This type of usage can also be used to capture important events in a product's life cycle - QA rejects and product returns, for instance – creating a flexible database that offers product history and other business reporting benefits.



Of particular value to the brand owner (and a strong financial incentive to make the investment in such systems) is the fact that the information generated at this labeling stage can be linked to the company's ERP (enterprise resource planning) system which links in a single database the data needed for a variety of business functions such as manufacturing, supply chain management, finance, projects, HR and customer relationship management.

The move towards outsourcing the production of goods might be beneficial in terms of reducing manufacturing costs but it can impact upon the control of brand security and visibility. Here, holograms can be integrated into the supply chain security process to enable companies to maintain control of their products from the sourcing of labels or proprietary components to the manufacturing and shipment of finished goods.

Holograms can be integrated with secure web interfaces to help eliminate rogue ordering of products while authorized distributors can pick, pack and ship items in carefully measured quantities to customers with the product's movements throughout the supply chain tracked and fully documented.

When brand owners or licensors make agreements to enable a third-party to produce licensed products, a security device is typically used to ensure authenticity and to help keep track of royalties. Sequentially numbered anti-counterfeit security labels are supplied to the manufacturing site in exactly the correct number corresponding to the quantity of items ordered.

Here, the role of the hologram is to act as the security device - an integral part of an all round added value information toolkit designed to support the secure ordering, shipping, tracking and control of components. The inclusion of serial number tracking enables the licensor to search the history of a particular serial number and identify to whom that item was shipped and when.

Conversely, if any items are discovered in the marketplace lacking the security label, it is automatically unauthorized thus opening the door to prosecution of the vendor for illicit trading.

Future Roles

Moving forward, the ability of modern holograms to incorporate other data forms and product tracking information will become increasingly important. One example of this is image serialisation, which can become visible to the naked eye when generated by overprinting or using an optical numbering method. Alternatively, it can remain covert and encrypted, requiring a special reading tool or machine to decipher it.

This enables holograms to be used for an ever widening range of anti-counterfeiting and brand protection applications, linking on-pack product identification with supply chain management, market enforcement and forensic support services. In this way, the identity and distribution of goods can be controlled through a total system solution involving security authentication features, tracking mechanisms and investigative services.


A prime example of this is in the merchandising sector, particularly for sporting events such as the Olympic Games, the FIFA World Cup and the American Football Superbowl. Licensed merchandise produced and sold to promote and capitalise from such events now routinely feature serialised holograms as the key authentication device in track and trace programmes.

The 'evergreen' merchandise of all the US sporting leagues have also used serialised holographic labels and tags for many years testifying to the effectiveness of such programmes.

These ensure the effective distribution of tags and labels to official licensees, the collection of revenues from these licensees and, in return, the protection of revenues from the growing array of sophisticated and hard-to-detect counterfeits that plague such events.

In the US, one of the country's most popular sports - NASCAR sports car racing industry – has embraced hologram technology in an attempt to crack down on the counterfeiters and secure lucrative merchandising revenue streams. The industry has adopted a second generation hologram technology on all officially licensed merchandise this year, which includes a track and trace enforcement system.

The initiative is seen as further evidence that authentication technology can add value to the entire supply chain - the new and improved hologram, designed to more effectively protect fans who are purchasing and retailers who are selling NASCAR licensed merchandise, features the 'Track and Trace' enforcement system produced by DuPont Authentication Systems who are also a major sponsor of NASCAR events.



This allows NASCAR and its licensees to equip ICE (Immigration & Custom Enforcement) officials and other agencies to track serial numbers on the holograms, more easily discover counterfeit holograms, prevent affiliated merchandise from entering the country and investigate bogus products sold in foreign countries. The fact that ICE is a dependency of the US Department of Homeland Security speaks to the governmental recognition of the political damage caused by counterfeiting and trading in unauthorized goods.

Elsewhere, German cosmetics giant Beiersdorf has stamped out counterfeiting of its popular Nivea branded range of hair care products in Russia with the use of a technology called HoloSpot.

This is a miniaturised self adhesive label containing four different levels of security, including an overt holographic numeral, holographic microtext, a projection hologram and an encrypted digital code unique to each product, with the data written to the labels in a real-time production environment using a lithographic system linked to a database of production information.

The company introduced the feature along with an awareness campaign to distributors advising them not to buy outside legitimate supply chains, and within a year of its introduction, the company reported an absence of counterfeits.

Unquestionably, one of the keys to the success of holograms since being adopted for authentication purposes in the early 1980s has been the ability to adapt and constantly find new roles. We will undoubtedly see more and more interesting developments for the technology like the ability to personalise holograms, which is just beginning to take off, that will offer far reaching benefits that develop and expand further the role of track and trace.

So, with the seemingly remorseless march of technology and the resolve of governments, anti-counterfeiting agencies and companies around the world to stand firm in the face of international organised crime, as well as the casual opportunist, there's no reason why the hologram will not continue to evolve, becoming more and more enmeshed in global supply chains and adding value in the process.

ENDS

Note to editors

The International Hologram Manufacturers Association (IHMA) is made up of 90 of the world's leading hologram companies. IHMA members are the leading producers and converters of holograms for banknote security, anti-counterfeiting, brand protection, packaging, graphics and other commercial applications around the world. IHMA member companies actively cooperate to maintain the highest professional, security and quality standards.

For further information on the IHMA, contact +44 1932 269917 or visit the website – www.ihma.org.