CODA

Covert Optical Devices for Authentication of commercial products

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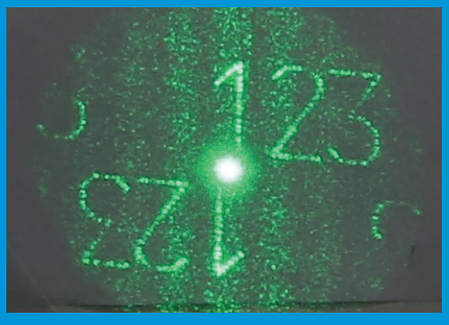
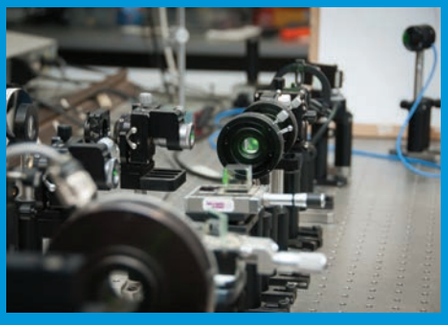
New Technology from DIT





Anti-counterfeit holograms and labels with covert security features

CODA is a low cost, individualised product designed for use in anti-counterfeit labels that uses light beams to produce unique patterns of light. These patterns can be read on a hand-held device.

CODA technology can be used for many anti-counterfeit security purposes. Examples include security inks, tamper proof labels and security holograms. Currently, many of these products use a broad range of technologies but it is hoped that CODA will improve covert security in these areas, therefore removing the need for several security labels on a single product.

CODA is a transparent plastic photopolymer layer containing a diffractive optical authentication device (DOAD). The DOAD produces a specific pattern of light beams that can be read via a separate machine but are practically invisible in room lighting.

DOADs work by creating a pattern that corresponds to a geographical area, product batch or line. When a product is checked, a pattern that corresponds to the DOADs pattern can be certified as genuine. Similarly, if a pattern on a product does not match the DOAD pattern it can be noted as counterfeit.

CODA technology is novel, efficient and easily incorporated into existing security systems. By using CODA, the user gets a level of security that is not currently commercially available on the market.

Applications

CODA's principal application is as a covert anti-counterfeit label. This would be of interest to companies in a range of industry sectors, particularly those which rely on high-quality, efficient security for their products such as pharmaceutical and consumer goods.

CODA simply adds an extra level of covert security to existing systems. By using a transparent plastic layer on products, the user can be sure of the security of their product without the use of intrusive tags.

CODA technology prevents the sale of counterfeit products, therefore improving the marketplace for both consumer and seller.

> "By using a transparent plastic layer on products, the user can be sure of the security of their product without the use of intrusive tags"

Opportunity

The anti-counterfeit packaging market is currently driven by the significant financial losses caused by counterfeiting. Both Asia and Europe have a lower share in the security market than North America, which holds a majority share in the market. However, Asia has a much higher rate of counterfeit goods, and is therefore a significant commercial market opportunity for technologies like CODA.

According to an Anti-Counterfeiting Strategies report published in 2012, the counterfeit industry is thought to have accounted for 2.8% of global trade and is worth approximately $500 billion.

Product manufacturers in various sectors will find this product useful. It was developed with Pharmaceutical, Consumer Goods, Currency, Tax Stamps, and Automotive markets in mind.

CODA's ease of use as a packaging label will make it easy for these sectors to adopt the product.

Advantages

CODA offers a number of advantages over existing anti-counterfeit technologies:

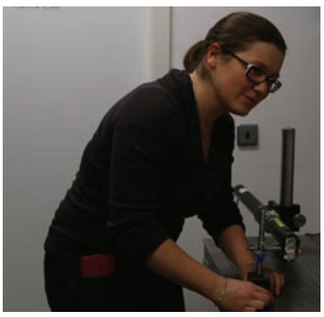
- Tamperproof – CODA adds a tamperproof layer of security to a product.
- Unique fingerprint – DOAD technology uses light beam patterns that cannot be easily duplicated.
- Covert – CODA is covert and machine readable for authentication purposes.
- Unobtrusive – the label is transparent and requires very little packaging 'real estate'.
- Works in low-level and ambient light – DOAD technology works even in limited light conditions.
- Authentication and traceability – CODA is easily individualised and combines the two most important interests of covert security; authentication and traceability.

Stage of Development

CODA has been developed by researchers in the Centre for Industrial Engineering Optics (IEO) at DIT Focas Research Institute with the support of the Enterprise Ireland Commercialisation Fund.

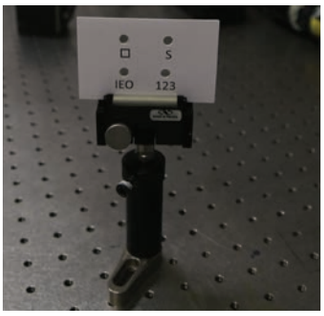
The research team has developed the method and processes for the large scale production and fabrication of these devices. These methods allied to the use of the IEO's patented photopolymer material makes it possible to obtain high efficiency devices.

DIT is currently seeking expressions of interest from companies interested in licencing and developing the product.



Left:
Dr Monika Zawadzka, Centre for Industrial Engineering Optics, DIT, testing the covert security devices

Left:
Dr. Izabela Naydenova and Dr. Suzanne Martin, Centre for Industrial Engineering Optics, DIT



Left:
The CODA prototype

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