The Evolution of Security Holograms— They're Not Just for Credit Cards Anymore

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ABSTRACT

Security holograms have evolved from high security applications such as credit card and currency protection, into the world of product and brand image security. As branded products increase in value, counterfeited imitations are finding their way to market. To protect a company's reputation and bottom line, security holograms have been used to authenticate products.

Using a variety of different holographic techniques, holograms can be designed to meet the needs of a specific application, from financial documents to designer jeans. Holograms are unable to be photocopied or scanned. They can be made to be tamper evident. Overall, they are very difficult to replicate without substantial investment. By providing a visual cue to both merchants and customers, holograms can help keep fake goods off store shelves. And the holographic effects provide a unique marketing tool by attracting consumer attention on busy store shelves.

INTRODUCTION

Security holograms are probably best known for their application on credit cards, protecting both consumers and merchants from counterfeit transactions. Their use began around 1981. When losses due to counterfeit VISA cards leapt from $740,000 in 1981 to $11,000,000 in the next year, VISA International redesigned its credit cards to incorporate a security hologram [1]. Today, over 1.8 billion transactions using credit, charge and debit cards are processed each year [2]. All these transactions are completed using major credit cards featuring security holograms.

Today the benefits of security holograms are growing beyond protecting credit cards. Protection of a product or company's name or brand is becoming increasingly important as more and more equity is found in brand names and images. Security holograms are being used to not only protect manufactures, but to verify to both consumer and merchant that the product about to be purchased is in fact authentic. They're showing up on video and music tapes, pharmaceutical products, government seals, cosmetics, event tickets, hang tags for clothing and sporting goods and more. By using a variety of different holographic techniques, security holograms can be designed to meet the security requirements of a specific application. And the benefit of the eye-catching look of the hologram also provides a unique marketing tool, as consumers are not only drawn in by the unique effects, but are reassured that the product is authentic.

SECURITY HOLOGRAMS

OVD's and Security Holograms

Security holograms belong to a larger class of materials known as Optically Variable Devices. This general title covers holograms, diffraction gratings, multi-layer structures like merle and pearlescene effects, and lenticular screens. It covers any visual media, which has a changeable or interactive effect (e.g. oil on water). Unlike a simple reflection device, an Optically Variable Device alters the components of white light.

Security holograms and diffraction gratings have historically been vacuum metallized with an Aluminum coating. The fine features of holographic and diffraction patterns demand vacuum deposition coating techniques. Not only do they require the coating to make the images visible in ordinary lighting conditions, but it must also be applied in a vacuum due to the fine coating necessary. Recently, several companies have offered transparent imagery where reflection is enhanced with vacuum deposition, high refraction index coating.

Defining the Problem

Counterfeit products account for about 5% of world trade, representing about US$80 Billion Annually [3]. These include obvious examples like credit cards, pharmaceuticals, audio, video, but many are less obvious. Losses to the apparel and footwear industry are estimated at US$15 Billion annually [4]. Up to 500 deaths have been linked to counterfeit medicines [5]. Counterfeiting not only leads to significant loss to the bottom line, but can be a threat to overall consumer safety. Security holograms provide an effective visual way to protect a product. They are easily identifiable to both consumers and merchants, and can help keep fake products from reaching store shelves.

Security Requirements

Security holograms can be specifically designed with a variety of complex holographic techniques to provide an added level of security to a product. The combination of such techniques as 2D, 3D, diffraction gratings, holographic white and

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covert imagery results in complex images that are extremely difficult to replicate. The combination of holographic techniques utilized is based on the level and type of security that is required by the application. For example, the level of protection required to guard pharmaceuticals and currency will be very different from the requirements of a designer clothier.

According to the International Hologram Manufacturers Association, one of the fastest growth areas for security holograms is in the area of specialized security and product and image security. Although the protection of the product is still a focus, these segments also value the protection of the product or company's name or brand. As more and more equity is found in brand names and images, the greater the potential for loss. Counterfeiters are increasingly targeting products such as licensed goods, collectible items, and branded products. Using security holograms can verify the product's authenticity. Consumers include major sports licensees, (NFL, NBA, NHL, etc.), Microsoft, Sears and DuPont.

Why Holographic Security Elements?

Why use security holograms? Holograms are extremely difficult to counterfeit. They can not be photocopied or scanned. Security holograms can be made tamper evident. Holographic replication requires a substantial investment in technical knowledge, capital equipment and experience. Without these resources, the resulting counterfeit image is of inferior quality and can be easily detected. They can also be used in a variety of substrates best suited to the protection required. Stickers, seals, hang tags, labels and full product packaging can be created from holographic materials.

In addition to the security benefits offered by security holograms, they also offer a unique marketing benefit. The eye-catching look of the hologram draws the consumers in for a closer look while providing them with the peace of mind that the product is authentic. The use of security holograms can be highlighted in campaigns to reinforce to consumers that the manufacturer is taking an added step to protect them from fake and inferior products. Both of these factors have been shown to positively effect the bottom line.

Results

Land Rover Genuine Parts feature a holographic label to clearly identify genuine parts, even to the untrained eye [6]. Pierre Cardin clothing features hang tags that include a hologram to certify the items are authentic [7]. The Caykur Tea Company revealed that it has recovered the equivalent of over US$70M in sales since it started using a hologram to authenticate its tea packs [8]. The benefits that can be gained by using security holograms can be substantial. And with the development of such organizations as the Counterfeiting Intelligence Bureau and the International Hologram Manufacturers Association Image Register, manufacturers of security holograms are gaining additional consumer confidence. Both organizations provide resources to protect the users of security holograms from counterfeiting.

As new holographic technologies continue to be developed and refined, the level and type of products that can be protected by security holograms continues to grow. Techniques such as covert imagery and specialized printing are providing new solutions to the problem of counterfeiting. And as companies realize the profound financial benefits that security holograms can offer—both as security blanket and eye-catching packaging for a product—they are sure to continue to recommend and expand their use.

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