

Security hologram works

Continued to dominate the authentication space in India

Since the early 1980's, the security hologram has grown in popularity as an authentication device. Starting with the first image on credit cards in 1983, its application expanded rapidly into document protection, branded goods authentication, fiscal stamps, and currency all over the world. In fact, the security hologram is now the reference device against which other security devices are compared. Globally, over 50 percent of all documents or products are protected by this technology.

In India, the usage of security hologram started in 1990-91 and today it has been used by more than 10,000 brands as an authentication tool to combat counterfeiting.

This article highlights how this technology introduced in India and continues to dominate the authentication space.



“As an industry we innovate the manufacturing process, indigenously developed various machinery, raw materials in order to compete with foreign hologram manufacturers. That is the reason hologram as an industry groom in India”

- U K Gupta
Founder Member &
Past President (HoMAI)
CMD, Holostik India Ltd.

1990's saw boom in the stock market post liberalisation and there was great demand for securing the share certificates because of the prevalence of share certificate frauds that were constantly being discovered.

It was the period, when few new generation entrepreneur in India started exploring business opportunity in security printing technology and started exporting this technology from USA.

Despite numerous challenges like unavailability of quality raw material in India, heavy import duty and missing critical converting technology they started delivering holograms through innovating manufacturing process and developing raw material in India.

Recollecting the memories, *Mr. U K Gupta, Founder Member & Past President of HoMAI*, stated, “Holography started in India in 1991. In initial phase we have various challenges as the basic information related to technology was limited to few people abroad, and they were simply exploiting our ignorance. We realised the problem

and it was in 1994-95 hologram manufacturing companies started talking to each other in trying to sort out the difficulties being faced in forms of technology, machine and input material. As an industry we innovate the manufacturing process, indigenously developed various machinery, raw materials in order to compete with foreign hologram manufacturers. That is the reason hologram as an industry groom in India.

Mr. Rohitt D Mistry, another Founder Member of HoMAI & CMD of Holographic Security Marking Systems, stated “We developed the first hot stampable hologram in India. Many companies such as Reliance, Bank of India, Bank of Baroda, Dena Bank, Llotds, and many others had their share certificates hot stamped on the share certificates, previously some companies had resorted to using self adhesive holograms but they proved to be too costly due to manual application. The hot stampable hologram increased the security at much reduced costs. This was further developed for a label for a well established pharmaceutical liquid formulation “Phensedyl”.



“Our first project was with Bausch & Lomb in December 1991 the makers of famous Ray-Ban range of Sunglasses. Despite numerous challenges like unavailability of quality raw material in India, 130% import duty and missing critical converting technology we delivered on this project through innovating the manufacturing process and sourcing basic raw material from South Korea. The project was a huge success for Ray-Ban and for us”

- G S Dhillon
Founder member and Past President (HoMAI),
MD, Alpha Lasertek India Ltd

“The initial application which gives recognition to security hologram in India was its use on Voter Identity Card in 1991”

Security hologram in document protection:

Over the period brand owner's started considering security this technology for brand protection purpose; although, the key application which gives recognition to security hologram in India was Election Photo Identity Card (EPIC). It was in 1991, when *Mr. T N Seshan (Former Election Commissioner of India)* introduced security hologram on voter identity card in India across the country to stop or avoid duplication.

The project becomes a landmark for Indian Hologram Industry and today, all 28 States and 7 Union Territory in India uses security hologram on voter identity card. According to *Mr. Luv D Shriram, General Secretary & Treasurer (HoMAI)*, said “Security hologram was used in document protection because it provides the best visual authentication. Electronic authentication is not possible everywhere especially in remote areas so it generate a requirement of an instant visual authentication like a security hologram with advanced levels of security features for

authentication (*One such example is Visa / MasterCard which is continuously using security hologram as overt feature since 1983*).

Security hologram in excise revenue protection; landmark to industry:

The second big project which take this industry to new height was the introduction of holographic excise adhesive label (HEAL) in excise sector. As revenue from liquor contribute highest revenue for State's in India, HEAL were introduced by State Excise Department to keep an eye on revenue from liquor production in their States.

The revolution of first HEAL was introduced by Tamilnadu Government in 1999-2000 (*supplied by Holostik India*), which was followed by Uttar Pradesh in 2001 (*supplied by Holostik India*) & Kerala (*supplied by CDIT*) in 2002. Today, more than 17 States in India are using approximately 10.3 billion holographic excise adhesive labels annually (*See Table 1*).

Table 1: State and UT using security hologram on liquor with annual capacity on liquor (in 2011)

State/Union Territory	Year of Introduction*	Annual Volume (million)
Tamil Nadu*	1999	3000
Uttar Pradesh*	2001	1800
Delhi*	2009	360
Chattisgarh*	2005	720
Pondicherry*	2006	120
Madhya Pradesh*	2007	720
Uttrakhand*	NA	120
Rajasthan*	2007	720
Punjab#	2010	500
Orissa*	2007	480
Himachal Pradesh#	2010	70
Haryana#	2010	900
Sikkim*	2010	NA
Karnataka#	2002	NA
Meghalaya*	2009	NA
Kerala#	2002	700
Andhra Pradesh**	1996 / 2012	2,640
Jammu & Kashmir*	2012	720
Chandigarh	2012	NA

* State using full polyester holographic excise adhesive label (HEAL)

** State using paper label since 1996, in process to finalized HEAL from 2012

State using paper based excise adhesive label (EAL) with hologram as key component feature

NA Not Available

Security hologram in brand protection:

In the late 90's unique hologram based security aluminium foil was developed for pharmaceutical products, as it was and it still is a sector that is affected by duplicators and counterfeiters. Holographic Security Marking Systems developed aluminium foils and PVC used for blister packing of medicines with hologram making it the first application of hologram stripe on pharmaceutical product packaging in the world. In same period hologram manufacturers teamed together and Hologram Manufacturers Association of India came into existence in 1998.

The association was formed with an aim to promote holography in India and to protect consumer and brand from menace of counterfeiting.

Today, more than 10,000 brands in India are using security holographic solutions made by HoMAI members. They reached to public in various forms in various applications and they accepted it as a mark of authentication. They have been used in various forms catering almost various sectors / application in India. The flexibility of forms in which the hologram can be delivered, on many different types of products, is huge.

According to *Mr. Pradip Shroff, immediate past President of HoMAI and an expert in brand protection solutions*: "Security holograms are ideal 3-in-1 solution. A security hologram can be used as one technology for all three levels of security – identification, verification and authentication. A Security hologram can also be incorporated in a device with other authentication technologies to develop even a more robust solution."

Table 2: Comparison of some anti-counterfeiting technologies

	Overt	Covert	Forensic	Tamper Facility	Digital	Easiness of check	Cost Effective	End User
Hologram	X	X	X	X		Easy visual inspection / reader required	Minimal Cost	Easily recognised security
Micro-printing		X	X			Easy to check with proper equipment	Minimal Cost	Education is important
Taggants		X	X			Special reader required	Moderate to high cost	Manufacturer would need to authenticate
Color Shifting or Optical variable Ink	X	X				Easy visual inspection / reader required	Moderate to high cost	Easily recognised security
Track and Trace Systems (Bar Code / RFID)					X	Special reader required	Moderate to high cost	Manufacturer would need to authenticate

The each level of security hologram is designed for a specific purpose. Level one feature can be Overt (*Verification by human eye*) and can be used for identification and verification by consumer. Level two, covert (*Verification by a predetermined device or a tool*) can be used by manufacturer or their channel partner for an advanced level of authentication and verification. The third level is highly sophisticated and can be used by forensic experts and can be useful to law enforcement and for evidence in case of litigation.

Why hologram continue to dominate the authentication space in India?

It's almost 22 years since security holograms have been used in India. The reasons are many, but, it would not be possible without the combined effort of its industry professionals, association and its users. The reasons are many, but, mainly because;

Security hologram works at various levels:

No competing technology works at so many levels (overt, covert and forensic) or combines decorative, kinetic, and bright additive color effects in one single space. (See table 2)

Continuous R&D:

Hologram usage for authentication is increasing, and the technology is not standing still. Researchers are now working at the sub-micron level to produce novel, overt effects once impossible to achieve.

Development of standards:

HoMAI has developed "TUV-HoMAI Hologram Safety & Security Management Systems (HSSMS)" standards along with TUV Rheinland, a first in the world, security and safety standards to upgrade hologram suppliers' facilities / process. HoMAI members companies will now work with TUV and audit their activities against these standards. This new initiative

Figure 1:

An example of date calendar displayed at liquor vendor shops in Madhya Pradesh. The calendar described overt features of hologram in an enlarged view in local language. This type of calendar and posters are used to create awareness to the end consumer, so that they can distinguish between the original and fake product.

Courtesy:

Holoflex Limited

कार्यालय आवकारी आयुक्त, मध्यप्रदेश, ग्वालियर

दुप्लीकेट / मिलावटी शारब से बचने के लिये बोटलपर घरबा होलोग्राम मे अपनी सुरक्षा के लिये नीचे दिये गये फीचर्स पर गौर कीजिये।



कृपया ध्यान दें : देशी मदिरा के लिये हरा रंग का होलोग्राम है।
विदेशी मदिरा के लिये गुलाबी रंग का होलोग्राम है।

has been evolved to provide an independent assessment of the security system to enable customer select the best partner in developing and supplying solutions against counterfeiting.

Regulated industry:

The industry works under the strict guidelines and code of conduct of its industry body, Hologram Manufacturers' Association of India (HoMAI). Formed in 1998, HoMAI is working on advancement of holography technology and encouraging its members to adopt best practices, standards and usage of advance technology in providing cost effective solution against counterfeiting.

Hologram image registration:

HoMAI has now made arrangement with CIB London (Counterfeit Intelligence Bureau a specialized division of The international Chamber of Commerce-Commercial Crime Services) so that each HoMAI member can register their security holograms with CIB.

Educating stakeholders and consumer: (see figure 1)

In order to promote awareness and educate the end customer, hologram manufacturing companies have been adopting different methods in this regard. For example, in liquor sector date calendar are displayed at retail vendors. In these calendars



“Holographic film started with the idea to secure packaged products in automobile parts & tobacco industry from getting duplicated. Gradually, it became an “X-factor” in packaging of products. Innovative holographic security packaging, today, can go a long way in enhancing the visual appeal as well as secure the brand. Such innovative & creative customised holographic image with overt features integrates different packaging form for organised manufacturing industry & protects their Profit. Holographic image integration is the future for packaging products in India.”

- R D Surana
Founder member (HoMAI)
MD, Everest Hologvision Ltd.

overt features of hologram are described in an enlarged view in local language. This method has proved highly successful and greatly helped the end customer in distinguishing between the original and fake product effectively. Moreover from time to time, hologram manufacturing companies conduct seminars for brand owners / Government authorities to educate and impart training to their staff so they have full understanding of all the security features and effects contained within security holograms.

Security hologram enhances the value of digital technology

There are new non holographic technologies now available. Each one of them provides typically one level of authentication with their own unique method. Interestingly holograms and all such technologies can work together in developing a stronger difficult to copy, multi tech robust authentication solution.

Mr. Manoj Kochar, President of HoMAI, said “The menace of product counterfeiting has become very widespread and it is important to take a proactive approach to tackle this menace head-on. The International Standards Organisation (ISO) has taken the lead in this direction and has recently formulated

a new standard ISO 12931 titled ‘Performance Criteria for Authentication of Material Goods’. These standards lay down the guidelines for brand owners to undertake effective protection of their brands and products. Ours is one industry that provides a multi-level security solution as proposed by these standards. While the hologram remains the foremost weapon in the armoury of brand owners, it actually complements and easily integrates with other technologies like Security printing, Track and Trace etc. Such integration provides the brand owners to select the right mix of the various technologies for adopting the optimal solution and keep the counterfeiters at bay.

The future looks good

Security hologram usage to fight against the counterfeiters will increase further. Hologram industry is continuously developing new technology and new variants of features for all three levels – identification, verification and authentication. New developments will provide more exotic and difficult to stimulate optical effects. Researchers are now working at the sub-micron level to produce novel, overt effects once impossible to achieve. A multi technology device incorporating security holograms will be the most preferred solution for years to come.