

# Digital Print Technology – an Opportunity for Security Print, or a Threat?

*Glenn P. Wood, Reconnaissance International*

For the security print industry, the advent of and rapid advances in digital printing technology present both an opportunity and a threat.

On the one hand, digital pre-press techniques are revolutionising the speed with which security print designs can be originated. Added to this, a new generation of software-generated security features is now being offered by prepress and digital giants such as Kodak, Xerox and Agfa that work on the basis that digital printers can make any print element unique - a particular attraction of such features being that they can be added in-line with minimal on-cost and no changes to existing processes.

For example, Agfa has recently released security software for those who want to offer their customers advanced protection from piracy and unlawful duplication of designs on packaging, labels and other printed materials. This software named: Apogee Secuseal 2.0 is a successor to :Secuseal 1.0 launched in 2007. :Secuseal 1.0, was a set of plug-ins on Adobe Illustrator™ and applicable with all standard design workflows, allowing designers to add security elements to any printed design.

It is claimed that :Secuseal is the solution providing dedicated designing and verification tools to generate complex security designs and patterns that make imitations recognisable and traceable.

This software capability is specifically aimed at designers and printers of packaging and labelling for luxury goods, pharmaceuticals, official documents, identity cards and other branded products.

The security modules of :Secuseal are able to create complex backgrounds or convert images into complex linework patterns. There are four modules in the plug-in set. Each allows a specific security measure to be implemented directly on a printed design.

Furthermore, digital printing is ideally suited for serialisation (an alternative to traditional letterpress printing), thus offering the opportunity for financial and value documents to combine security with traceability.

Xerox offers a suite of printing solutions under the generic name of 'FreeFlow™'. These specialty imaging text effects can only be printed with a FreeFlow digital front end in combination with FreeFlow software – any other print server will print them as normal text. Recognizing that counterfeit copies of documents like coupons, tickets, and invoices can have serious financial impacts, Xerox combat this concern with exclusive fraud-resistant specialty imaging effects for static and variable jobs which add an extra level of security and authentication. The result is a printed document with any or all of the following security features: microtext 1 point size or smaller, 'correlation marks' the require a transparent decoder, Glossmark which is a type of latent image visible only when the glossy surface is tilted, uv. or infrared print requiring the appropriate light source to render it visible.

On the other hand, a combination of the falling prices in digital printing technology and advances in the quality and capabilities of these is lowering the bar to counterfeiting, and making the tools for the production of fake documents available to a much wider pool of potential counterfeiters. In other words, counterfeiting is moving beyond the traditional, skilled criminals and is now within the reach of the everyday opportunists – presenting an explosion in fake security documents.

In their battle to stay one step ahead of the counterfeiters, producers and issuers of secure documents are engaged in a constant process of innovation and renewal involving the reduction in the lifecycle of security designs and the development of ever-more complex intrinsic and extrinsic security features.

Xeikon's preferred anticounterfeit solution is a security toner.

Digital printing in combination with special security toner makes for a complete solution to prevent counterfeiting of the print (entrance tickets, local fancy fair lottery tickets). Xeikon currently offers two types of security toner, which light up when exposed to UV security light when printed on security paper. Digital printing, by definition, allows for variation of the security element for every print.

The recently announced (2 June, 2009) alliance between Kodak and Xeikon extends the range of options for Web-Based Solutions to the Digital Label and Packaging Market in the United States and Canada. The fifth color station of the XEIKON 3300 Press can be used for spot colors, as well as "one-hit" opaque white and special security toner. Using Xeikon's Form Adapted (FA) toner technology, the XEIKON 3300 combines the benefits of chemically produced toner with the performance of traditionally produced toner. Furthermore, the FA toner is FDA-approved for use in certain food contact applications.

German press giant Heidelberg, has developed an anti-piracy system for packaging which works using a combination of two security technologies and an optical verification system. The system is due to be launched in early 2009.

Linoprotect, as the system is called, uses ultra-thin copper or metal threads that are combined to generate a random pattern which is applied to the packaging on a label. This pattern is analysed by the Linoprotect reading module, a special camera system, and a cryptographic key that is unique to each customer converts the pattern into an equally unique datamatrix code. This code is printed onto the packaging next to the label with its pattern of copper threads using a digital Linoprint drop-on-demand inkjet system.

From the user's point of view, the authenticity of the product can be checked using just a mobile phone camera or a scanner and special software that is freely available. The software compares the two Linoprotect security features on the product or packaging and immediately identifies whether or not the content of the data matrix code matches the pattern in the adjacent field. Additional

information such as expiration date, dosage or a personalised hyperlink can also be provided.

An important aspect of the system is that it uses internal verification meaning that the pattern and the 2D barcode must be consistent. No reference to external databases is required. Moreover it needs no databases – so consumers can check for the Linoprotect signature as often as necessary without having to go online.

This presentation will cover the principles of secure document design and production, the methods of counterfeiting (including an analysis of the growth of digital counterfeiting, the key features that are being deployed in the battle against counterfeiting (in particular the digital variety) and some of the new generation of digitally-generated security features.

Special attention will be given to the digital printing of variable data on tax stamps (banderols). They constitute secure track and trace systems which provide both authentication and reconciliation information about the items to which they are attached. Such systems are already being introduced to reduce smuggling, verify the product and simplify the process of tax collection.

## **Author Biography**

### **Glenn P. Wood B.Sc., M.Sc., D.Phil (Oxon)**

*Glenn Wood is an Associate of Reconnaissance International – consultants and publishers of market intelligence on authentication technologies and strategies for brand protection, security print and personal identification.*

*After obtaining a science doctorate at Oxford University in 1978, Dr Wood worked with Ilford Ltd on the development of holographic materials and then at OpSec Security Group as VP Business Development for security products. He has written and lectured widely on all aspects of counterfeiting and piracy and the technologies that can be used to combat these crimes.*

*He joined Reconnaissance in 2007 and is primarily responsible for technology awareness and legislative developments with particular reference to the Americas. He is an active contributor to three monthly business-to-business newsletters, Holography News, Authentication News and the newly launched Tax Stamp News.*