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Authentix Launches Breakthrough Nano-Optic Plasmonic Feature

At the High Security Printing (HSP) Asia 2025 conference in Kuala Lumpur this month, Authentix unveiled PICO secure™, described as the world's first nano-optic, plasmonic optical variable device (OVD) for polycarbonate identity documents. The feature – says Authentix – delivers always-on structural colour and movement, drawing on its award-winning nano-optic technology.

PICO secure provides dual-sided protection for passport polycarbonate data pages and other government documents, with its effects visible from either side. It does this by exploiting the unique properties of surface plasmon polaritons (SPPs) at metal-dielectric interfaces to create angle-dependent or independent, and wavelength-dependent, optical responses that are next to impossible to counterfeit.

During the launch, Alan Newman, Chief Product Officer at Authentix, explained how this patented Level 1 feature enhances public engagement. It also supports any document theme through highly customisable and intuitive authentication effects.

PICO secure is fully customisable for design integration. It can be applied to paper and composite substrates and embedded into polycarbonate using standard, unmodified industry equipment. It uses significantly less material than traditional micro-optics and requires no inks or dyes.

Moreover, the material is produced in Authentix facilities (Thurso, Quebec) that are powered entirely by 100% hydroelectric energy, positioning it as one of the more sustainable options for document security.

Authentix has completed production qualification, confirming industrial readiness through third-party applications and downstream testing. Despite its ultra-thin form, the encapsulated structures support overprinting, polycarbonate lamination, and laser personalisation.

From banknotes to IDs

This is Authentix's second major announcement in recent months. The company recently signed a

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Montana Introduced New IDs

Beginning in December 2025, the Montana Motor Vehicle Division (MVD) introduced redesigned driver's licences and ID cards to reduce fraud and identity theft.

With polycarbonate substrates, the cards feature Montana state landmarks, black-and-white laser-engraved images, multi-colour ink, colour-shifting elements, ultraviolet designs, and raised tactile features, making them difficult to replicate. The new credentials will include icons such as a REAL ID white star, a black eagle-in-flight US citizenship marker, and a black organ donor symbol.

Also included is Veridos CLIP ID, which combines laser engraving and colour printing to produce a lifelike image of the ID holder in true, vivid colour. According to estimates, 25 million CLIP IDs have been used over the last five years.

The news follows the Texas Department of Public Safety, which also began issuing driving licences and ID cards in August 2025. Similar to Montana, Texas IDs feature a black, laser-engraved star in the upper-right corner to indicate REAL ID compliance, which took effect on 7 May 2025. Under this requirement, individuals must present REAL ID-compliant documentation for domestic air travel and access to certain federal facilities.

Another commonality is the optical security element. While Montana features CLIP ID, Texas includes OVM™ (Optical Variable Material) from Crime Science Technology (CST), which features a novel blue Texas-shaped icon in the bottom-right corner to aid quick state identification for frontline personnel.

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Cooperation and Licence Agreement with LEONHARD KURZ, centred on QUANTUM™ Stripe, its other patented nano-optic feature. Launched two years ago, QUANTUM uses plasmonics to deliver movement, 3D depth, and multicoloured effects in an ultra-thin form, visible from all angles and under varied lighting.

In 2025, Authentix acquired the authentication operations of Meta Materials, anchored around Nanotech Security Corp (NSC), for approximately $10 million. NSC specialises in nanostructured functional films such as Lumachrome®, used in more than 30 banknote denominations; LiveOptik™ PROTECT, designed for brand protection; and QUANTUM® Stripe, the fully animated nano-optic and plasmonic banknote feature.

Until the acquisition, Authentix was mainly positioned in the covert, Level 3 security feature space. The addition of NSC's portfolio and the launch of PICO secure now place Authentix as a first mover in nano-optic plasmonic security features, strengthening its reach across currency, brand protection, and now identity.

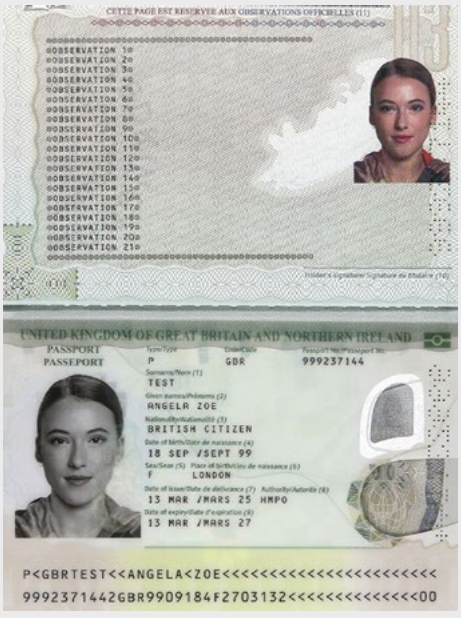
UK Confirms Passport Design Upgrade

British passports will undergo a redesign beginning in December 2025, representing a significant update since Brexit. For the first time, the front cover carries the coat of arms of His Majesty King Charles III. The new design reflects British pride. Inside pages display illustrations of UNESCO-listed landscapes such as Ben Nevis, the Lake District, Three Cliffs Bay, and the Giant's Causeway.

The current passports remain valid until their expiry date, and new designs are issued automatically during renewals.

Thales first secured the contract to deliver the UK's new generation of passports in 2020. Since then, the blue non-EU electronic passport has rolled out steadily. The latest version introduces a polycarbonate data page and a new suite of security features developed by Thales.

The holder's photograph is laser-engraved into the card body and seamlessly integrates with the surrounding secure artwork. Printed features are positioned between the surface of the document and the laser-engraving, making tampering more difficult. The main portrait has additional protective layers, including embedded Diffractive Optically Variable Image Devices (DOVIDs) and positive/negative embossing. CLI/MLI images and tactile laser effects add further complexity, increasing the challenge for counterfeiters.



Source: HM Passport Office.