Gemalto Color Laser Shield

**High resolution portraits secured by color lasers**

Polycarbonate is widely used for secure ID documents, offering optimum resistance against attacks, a wide range of security features, and an extended lifetime. Now Gemalto is launching Color Laser Shield, taking the security of polycarbonate ID documents to an even higher level.
Gemalto Color Laser Shield is a unique solution for securing a color photo within a polycarbonate ID document. Powered by four color lasers hitting a special ink in the document’s inner structure, this new issuance solution achieves the highest levels of resolution and counterfeit protection.

Fitting seamlessly with governments’ issuance workflows, it uses blank documents uniquely protected against fraudulent personalization. The unrivalled security performance delivered sets a new benchmark in laser personalization solutions.

Gemalto Color Laser Shield is available for cards and passports. Color Laser Inlay allows high security printers to easily integrate Color Laser Shield in their document manufacturing process.

The best of polycarbonate with a color photo

Gemalto Color Laser Shield represents a breakthrough in the ID document market, bringing color to laser photos and further enhancing document security. Protection and verification of the holder’s photo are boosted through a combination of high end technology and traditional security elements.

Issuers of official ID documents will find a technology that fits naturally with their business processes. Document personalization is kept separate from bulk manufacturing, and is available for all types of documents, including passports, ID cards and driver licenses.

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Color Laser Shield has been deployed in the field with over one million national eID cards issued by Cameroon’s authorities.

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**GEMALTO COLOR LASER SHIELD DOCUMENTS OFFER NUMEROUS BENEFITS:**

- Reduced fraud due to technology barriers
- Simple verification
- Seamless integration
- Compliance with best practices

**POWERED BY FOUR COLOR LASERS HITTING A SPECIAL INK IN THE DOCUMENT’S INNER STRUCTURE:**

- **Red laser** bleaches cyan pigments of the photo, creating cyan component
- **Green laser** bleaches magenta component of the photo, creating magenta component
- **Blue laser** bleaches yellow component of the photo, creating yellow component
- **YAG laser** creates black component of the photo
Security for IDs
Gemalto Color Laser Shield is built on the secure foundations of polycarbonate. All the security elements and document holder information are sealed inside the document, protecting each one in case of attack.

The photo is also engraved inside the document. In addition, the security of personalization technology is enhanced thanks to the four separate lasers.

New barriers for fraudsters
The lasers used in Color Laser Shield technology are not available on the open market. Only authorized bodies can access them. Specialized expertise is needed to set up and operate these lasers, setting the bar even higher for attempts at fraudulent personalization or photo manipulation.

Once engraved, the photo is extremely well protected, thanks to traditional security features that create a strong link with the rest of the document. Surface embossing, UV guilloche lines or even DOVID are all able to overlap the photo and document. They would be destroyed in the event of a fraudulent attack, making any attempt to do so visible and therefore detectable.

Better protection for blank documents
Blank documents have a strong level 1 protection thanks to the reactive ink in the photo area. Before personalization, this zone appears as a dark panel. The four color lasers are essential to print the photo in this area.

If other available technologies, such as inkjet or D2T2, are used to attempt fraud, the photo would not be visible due to the dark panel. Even if it was feasible, removing the panel would destroy the security features linking the photo to the document.

A specific hallmark
As with any secure printing technology Color Laser Shield has a specific hallmark, allowing clear authentication at the second inspection level.

Simple to verify
Gemalto Color Laser Shield offers a photographic quality image of the document holder, facilitating the authentication process.

Controllers only have a few seconds to authenticate the document holder, who is completely unknown to them. They must do this based on a photo printed on the document, possibly taken several years ago and therefore showing significant physical differences with the person in front of them (hair length, color or style, or glasses, for example).

The sharper the photo, the easier the authentication
With minimum resolution of 800dpi, and up to 1200dpi possible, Gemalto Color Laser Shield technology ensures highly detailed reproduction. This makes it easier to catch imposters.

A leaner design
Because the holder’s photo is secured with high technology, and the link with the document is made using traditional security elements, there is reduced requirement for a variety of security features. Indeed these are usually implemented to secure the photo, and often unknown to controllers. The design can therefore be made leaner and more familiar to controllers.

As a result, the focus is back on the photo. Controllers know what to look for and how to authenticate it. Their task is made simpler and faster.

Color as an essential extra
Within each country, populations are becoming more and more diverse. Crucially, Gemalto Color Laser Shield offers a color photo that enables representation of various skin tones.
Seamless integration

The color photo is created during a separate personalization step, respecting standard and established best practices for production flow and facilitating excellent responsiveness to urgent requests. The laser module is adaptable to most standard personalization machines.

A breakthrough process

During personalization, the color photo is marked precisely, permanently and irreversibly in the document’s inner layer, using color lasers.

This is based on the principle of selective bleaching.

Special pigments (ink) fade when irradiated with laser light at a specific wavelength and strength.

Gemalto Color Laser Shield technology uses three lasers (blue, green and red) with three different wavelengths for all primary colors. Each primary color (magenta, yellow and cyan) is bleached through a different laser wavelength. By mixing the primary colors, a variety of colors can be produced in photographic quality. The color of every picture element can be achieved through the use of a different intensity of the laser beam. Any primary color can be split into 256 levels.

The technology incorporates the implementation of three lasers within the laser personalization machine. Red, green and blue industrial lasers irreversibly bleach the cyan, magenta and yellow colors.

Matches the high standards of polycarbonate

Fully compliant with 10-year lifetime requirement

Gemalto Color Laser Shield reaches the high standard for durability set by polycarbonate, with outstanding resistance to delamination and strong light exposure. The color photo surpasses the critical Gemalto qualification tests regarding 10-year durability, including adhesion of layers and color aging.

Designed to stay one step ahead of counterfeiters

Color Laser Shield is built to be a platform for innovation. Gemalto’s research and development engineers continuously design groundbreaking concepts in order to stay one step ahead of counterfeiters.
About Gemalto

Gemalto is the world leader in digital security with 2017 revenues of €3 billion.

In the civil identity sector, Gemalto provides secure documents, robust identity solutions and services that address government programs for ID management and road safety, eGovernment/mGovernment infrastructures for trusted eServices, and border and visa management requirements.

Gemalto also addresses public safety and law enforcement challenges, offering best-in-class forensic solutions.

The company’s products and solutions are deployed in over 200 active programs worldwide, with specific expertise in secure document issuance, biometrics, document readers, authentication, ID management and data protection.

Gemalto collaborates with its clients to report and share best practices.