ePassport security hinges on datapage technology

As more and more states begin to issue ePassports with a polycarbonate datapage, it is important to focus on the key characteristics that such a synthetic datapage should have, whether it be electronic or not.

Issuing authorities demand products providing compliancy with international standards, security to curb document fraud, convenience for optimal users' experience, and design for a strong visual identity. The polycarbonate datapage developed by SPS, which includes a specific aluminum hinge, responds to issuing authorities' most common demands. Regarding compliancy with international standards, the product complies with the stress methods requested by ICAO standards (among others: turning test and high tearing resistance test). As a result and as an example, any effort to remove the hinge from or reattach to the datapage would leave clear tamper evidence.

The polycarbonate datapage integrates specific securities and is designed to curb document fraud with a hinge fully embedded in the structure and customizable with fine text or logo; robust level 1 security features: CHI (Custom Hinge Image), country specific metallic watermark; technical answers (security features) adapted to the most typical fraud attempts (counterfeiting, dismantling and reassembling, forging of the photo with a film (overlay), forging through slicing/splitting) – for example, with CAI (Custom Antenna Image)

Three concepts are available for hinge manufacturing: molding, collating (fixation) and laminating.

During the molding or collating stage, the hinge is added to the datapage after lamination, which can be a weakness for the security of the document – one of the most common attacks being the alteration or the replacement of the PC datapage. The hinge base material is a durable and flexible polymer and fully part of the PC datapage structure (where the hinge is sandwiched in PC layers) and is laminated with the polycarbonate layers. As the hinge is fully integrated inside the PC datapage structure any attempts to remove the hinge will destroy the structure and there will no possibility to reattach the polycarbonate layers to the hinge material.

Security

The hinge is fully customizable through CHI (Custom Hinge Image) technology. This innovative security feature is a metallized repetitive pattern (text or logo) located on the visible part of the hinge and is controllable with the naked eye. CHI security feature is difficult to replicate with commercial products and techniques. It enables to control the authenticity of the e-datapage without the help of any tool.

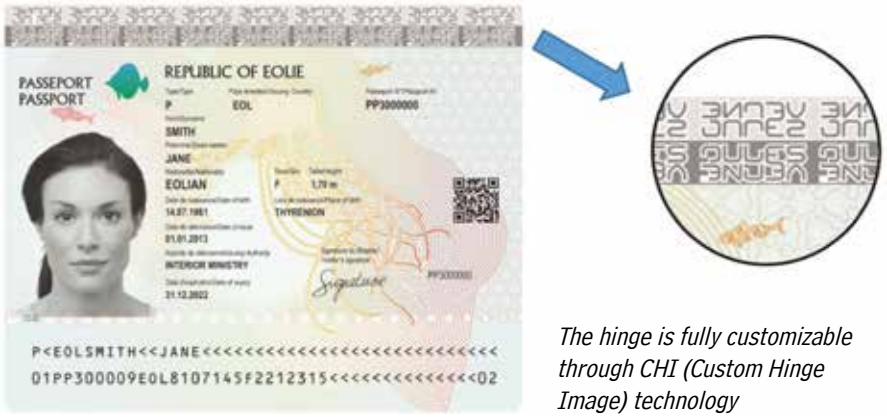
Polycarbonate has a strong mechanical and thermal resistance. Those characteristics provide polycarbonate datapage with a life span superior to 10 years. The polycarbonate layers composing the datapage are fused at high pressure through the lamination process, forming one single polycarbonate monobloc and preventing delamination.

A customized aluminium watermark protecting the photo from attacks

Watermarks

The datapage structure contains a country specific metallic watermark. Custom Antenna Image (CAI) is a metallized watermark made of aluminium which is embedded into the datapage body. This feature is created at the assembling process. The aluminium watermark, is a level 1 security feature, visible to the naked eye; it is controllable with the a use of a direct source of light E,g smartphone lamp. This security feature is positioned inside the card body and actively mitigates attacks by abrasion through the back of the card.

As the product is designed for convenience for optimal users' experience, the hinge is flexible and durable without shape memory and no butterfly effect opening the booklet. It can be thinner than 600μm, to maintain the flexible datapage card structure and by integrating a customized aluminum logo – one visible on the hinge, and one as an internal watermark, the solution allows authorities to implement a stronger visual identity on their booklet.



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