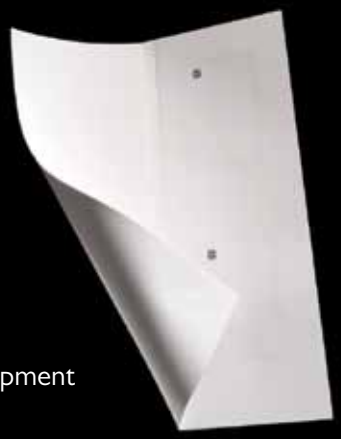
e-Passport Cover Page Inlays

Laminated Contactless Inlay Suitable for Cover Pages of e-Passports • SOKx

- Provides the highest level of electronic document protection and reliability
- Chip and antenna are sealed to protect the electronics
- Complies with all ICAO and ISO standards
- Inlay technology based on in-house patents
- Inlay antenna is based on copper wire transfer technology
- Inlays are suitable for use with all standard passport production equipment



HID

SECURE identification.

The SOKx contactless laminate inlays are designed to be integrated into the cover pages of e-Passports that are produced in standard passport manufacturing lines. The ideal solution for e-Passport applications, HID Global's SOKx inlays are versatile and durable by design and can be easily customized using the widest range of carrier materials available.

Featuring ceFLEX™ material, the inlay is highly durable and enables full protection of the electronic chip and antenna to withstand the daily mechanical wear and any tampering attacks. All materials of this inlay – the inner and outer layer – are optimized for the e-Passport manufacturing process.

The outer synthetic material A2, which is hard to tear apart, easily adheres to all types of cover materials and security paper and is developed to be processed by passport booklet assembly machines such as Unomatic or Kugler. The synthetic inlay materials will not deteriorate and ensure a long life time and are compatible with a wide range of glues.

- Transponders are embedded into the inner layers of the ceFLEX material and can be combined with customized outer layers to meet the individual requirements of any end-user
- Laminate ceFlex inlay core complies and exceeds the electromagnetic, physical and mechanical requirements of ISO 14443 parts 1-4, ISO 10373-6 and with ICAO 9303
- Customized inlays utilizing the widest range of carrier materials available
- Proven design ensures optimum chip performance
- Available with a choice of contactless e-Passport ICs
- Durable inlay material provides advanced document resiliency (10 years)

Specifications

Available with Different IC's	**Chip:** Available with a choice of contactless e-Passport IC's from leading chip suppliers based on customer requirements within different proven module types (e.g. MOB4, MCC8, etc.) **Operating system:** ICAO conform OS according to customer preference
Dimensions	**Format:** 2-up inlay according to most common standard passports manufacturing equipments. Other formats are available upon customer request (1-up, 3-up). **Width and Length:** According to customer specification (tolerances: ± 1 mm) **Thickness:** 450 µm ± 45 µm **Thickness Over Module:** 480 µm ± 45 µm **Hinge:** 7 mm – 12 mm ± 0.5 mm ; according customer request
Material	**Intermediate Layers:** ceFLEX™ **External Layers:** Synthetic material A2 (white)
Electrical	**Operating Frequency:** 13.56 MHz **Resonance Frequency:** According to best performance for specific IC **Data Transfer:** Up to 848 kbits/s (depending on IC and reader)
Antenna	**Size:** 47 mm x 78 mm ± 2 mm **Material:** Copper wire (Ø 100 µm) **Module Connection:** Thermo-compression bonding **Technology:** Transfer wire technology, patented by HID Global
Storage Conditions	**Recommended Temperature:** +10° C to +30° C **Recommended Humidity:** 40% - 60% rel. humidity
Operating Conditions	**Recommended Temperature:** -25° C to +50° C **Thermal Resistance:** - 35° C to +85° C (acc. ICAO 9303[1])
Adhesion	**e-Cover Integrity Test:** > 6 N / 15 mm; de-lamination test (HID method) **Inlay / Security Paper:** Very good using standard cold glues; several glues successfully tested by HID (de-lamination test) **Inlay / Cover Page:** Very good using standard cold glues; several glues successfully tested by HID (de-lamination test)
Certifications	ISO 9001:2000 certifications for the manufacturing sites Common Criteria EAL5+ for chip Common Criteria EAL4+ for operating system ROHS conformity 2002/95/EG
Resistance	This inlay is designed to resist parameters acc. to passport system **Dynamic Bending Stress:** 1000 cycles (ISO/IEC 10373) **Dynamic Torsion Stress:** 1000 cycles (ISO/IEC 10373, ICAO 9303[1]) **Impact Test:** 25 cycles each side; 250 g at 320 mm height (HID test standard) **Chemical:** According to ICAO 9303[1] **UV Exposure:** According to ICAO 9303[1] **X-Ray Exposure:** According to ICAO 9303[1]
	This inlay has been qualified successfully by passport manufacturers through demanding internal test procedures exceeding ISO and ICAO requirements. HID is constantly reviewing the test procedure based on ICAO recommendations.

[1] test methods according to ICAO Doc. 9303 - Durability of MRTDs v.3.2

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