

**DURABLE CONTACTLESS E-ID CARD PRELAMINATE INLAYS**

- **Ultra-thin and Flexible** – Constructed of the slimmest and most pliable laminates available.
- **Reliable** – Secure and durable direct bonding on wire embedded antenna technology and antenna design ensure optimum chip performance.
- **Compliant** – Meets or exceeds applicable ISO and ICAO standards.

Designed for government agencies, Ultra-thin Polycarbonate e-Prelaminate Inlays provide the highest level of e-ID card security, reliability and durability. Tamper resistant inlays reduce authentication errors and document falsification.

Ultra-thin e-prelaminate inlays offer manufacturers more flexibility in card construction. The narrow dimensions of ultra-thin inlays make room for more layers of security features on both sides of the card. This allows additional security layers to be added during card construction while maintaining ISO thickness. Use of ultra-thin inlays also simplifies card construction. Card manufacturers can thicken standard layers to levels which are more production and yield-friendly or use the newly available space to increase the card's protective overlay.

Built to withstand the stresses of dynamic bending and torsion, HID Global Contactless Ultra-thin e-Prelaminate Inlays endure the rigors of ID manufacturing and long-term use; they are also designed to adhere securely to a wide range of materials and surfaces.

**APPLICATION AREAS:**

- National ID cards
- Driver's Licenses
- Foreign Resident Cards
- Health Care Cards
- Vehicle Registration Cards
- Voter Registration Cards

After years of experience in direct bonding on air coil antenna (more than one billion in the field today), HID Global has engineered direct bonding for wire embedded antennae and high frequency applications. Ultra-thin Polycarbonate e-Prelaminate Inlays provide durable and reliable antenna / IC connection (patent pending) for long lifespan.

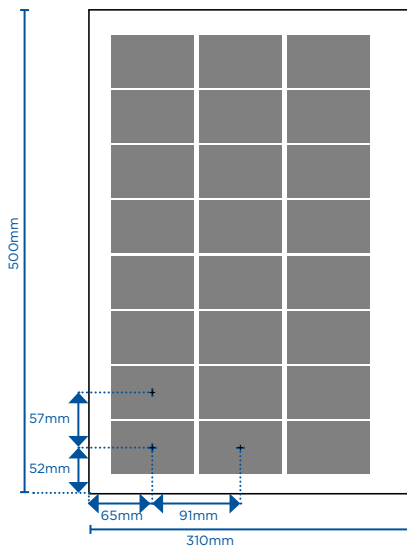
e-Prelaminate inlays are optimized to extend the life of each finished card. Constructed using direct bonding on wire antenna technology and encased in polycarbonate layers, durable e-prelaminate inlays fully protect the electronic chip and antenna. The inlays are compliant with applicable ISO and ICAO electromagnetic, physical and mechanical requirements.

### TECHNOLOGY HIGHLIGHTS:

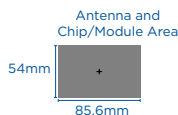
- Ultra-thin polycarbonate e-prelaminates (200 micron)
- Durable IC / antenna connection
- Proven wire-embedded antenna technology
- Fully enclosed antenna and chip are isolated for long-term stability
- Every e-prelaminates inlay meets or exceeds applicable specifications and standards for ISO 14443 parts 1-4; ISO 10373 parts 1-6; ICAO 9303
- Durable inlay material provides document resiliency up to 10 years



HID Samples Layout\*



\*Complete Polycarbonate e-ID card can also be provided on demand



### SPECIFICATIONS

Contactless Ultra-thin e-Prelaminates

PHYSICAL	
<b>Format</b>	24-up prelaminates for sampling. Other formats are available upon customer request (e.g., 20-up, 21up, 48up)
<b>Material</b>	Polycarbonate
<b>Dimension</b>	Sized to customer specification Maximum: 600mm x 500mm
<b>Thickness</b>	200 µm
<b>Dual-Sided Module Coverage</b>	Yes
<b>Adhesion</b>	Inlay integrity test:>3.5N/cm delamination 90° pull test
CHEMICAL AND MECHANICAL RESISTANCE <sup>2</sup>	
<b>Processing Conditions<sup>1</sup></b>	Can be processed with most polycarbonate layers
<b>Dynamic Bending Stress</b>	1000 cycles (ISO/IEC 10373)
<b>Dynamic Torsion Stress</b>	500 cycles (ISO/IEC 10373)
<b>Chemical Resistance</b>	Exceeds ISO/IEC 10373
<b>UV Exposure</b>	Exceeds ISO/IEC 10373
<b>X-ray Exposure</b>	Exceeds ISO/IEC 10373
<b>Delamination Strength</b>	Exceeds ISO/IEC 10373 peel test ISO/IEC 7810 (8.8)
THERMAL	
<b>Storage Condition</b>	Recommended temperature +10°C to +30°C Recommended humidity: 40-60% relative humidity (in original HID package)
<b>Thermal Cycling</b>	100 cycles -35°C/+80°C (ICAO)

<sup>1</sup> Process parameters may vary due to specific customer conditions during lamination step

<sup>2</sup> Evaluation made on reference card



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2014-09-30-gov-id-contactless-ultra-thin-eprelaminates-ds-en PLT-02518

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