Security Features for ID1 Cards:
Selection, Suitability and Impact on Production

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1. Definition
2. Classification
3. Expectations
4. Security Features
5. Impact on Production
6. Suitability
7. Qualification
8. Summary
A security feature is a feature ...

"that [...] helps insure the document’s integrity and/or authenticity as a properly issued document that has not been tampered with."

(ISO/IEC 18013 Part 1)

„that protects against unauthorized reproduction, alteration and other forms of tampering."

(ICAO)
Classification

> Secur. levels: 1–3 (ICAO)
> Verification: visually, by simple means, verification tools, forensic
> Complexity: 1 step to multistep feature, e.g. CLI
> Combination: window element with UV print, personalized
> Cost range: <1 cent to >1 $
> Suitability: complying with security requirements
Security features protect documents against:

> manipulation
> alteration of the data
> reuse
> re-engineering
> unauthorized personalization

And visualize

> attempts of tampering and manipulation
Guilloche, OVI, CLI/MLI, IR, UC, OVD

Fibers, UV-Fluorescence, Security Thread

holographic overlay, tactile personalization
hidden image, surface coating, IPI

Laser perforation, MPM/DAC, rainbow printing

DNA, ghost image, window element

taggants, see through, register, watermark

serial number, SPR, phosphorescence
Groups of features

- Design features
- Card set-up features
- Card surface features
- Material features
- Lamination-specific features
- Personalisation-based features
Design features

*Guilloche*  *Rainbow printing*  *micro printed text*

positive & negative elements *anti-scan/copy pattern*

*CLI/MLI*  *OVLR* optically variable elements ...
Material-based features

Security inks **Optical effect pigments (UV/IR/UC/OVI)**

Security thread **fibers or plateletts**

**UV-dull card body material** Overlays
Card set-up features

Transparent overlay  Personalization inside the card body

Window element  CLI/MLI ...

Printing/personalization in different layers
Lamination-based features

CLI/MLI Microletters
Inside and/or rised graphical elements/letters

Glossy/rough surface areas

Latent image visible by tilting/turning
Personalization-based feature

**Personalization inside the card**

**Ghost image** Combination of different technologies

**Tactile elements** CLI/MLI

**IPI/D-IPI** **Serial number** Laser perforation
IMPACT ON PRODUCTION

Printing  Lamination  Personalization
> **Background security design**
  (Rainbow printing, guilloches, microtext, ...)

> **Optical effect pigments, e.g. OVI**
  (Silk screen, flexo)

> **Colour change by tilting, OVLR**
IMPACT ON PRODUCTION

> Secure card body
> CLI/MLI
> Graphical surface elements & latent image
> Protective layer on both sides of the card
> ...

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IMPACT ON PRODUCTION

> Laser engraving
> CLI/MLI
> Microletters
> Laser perforation
> Tactile letters/figures
> …
ID CARD WITH NOVEL SECURITY FEATURES

POLYCORE® Ink printed surface

Colored shine trough feature - watermark

Window with colored secondary photo

Personalized UV fluorescent features

Color personalization of the card holder’s photo

Flexible silicon chip and printed antenna

Built in LED-Display

Full polycarbonate card body
<table>
<thead>
<tr>
<th>Security feature</th>
<th>Level of security</th>
<th>Design</th>
<th>Material</th>
<th>Printing</th>
<th>Lamination</th>
<th>Personalization</th>
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To make sure that the security features
> have a life time functionality
> endure environmental conditions
> enable card life service

Test criteria
> existing standards
  (i.e. ICAO, ISO 7810, 7816, 10737, 14443, 24789)
SUMMARY

- Big range of security feature to choose from
- Task: to choose the right mixture/combination
- Harmonize it with the design
- Only use restricted materials & suppliers
- A security concept is necessary in order to avoid weak points
Disclaimer

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