

Holger Reinke  
Regional Director Sales - Africa, OVD Kinegram AG

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# Optical Security Features to Complement Chip-based Government Documents

OVD Kinegram AG | Zählerweg 12 | CH-6301 Zug | Switzerland  
Tel. +41 41 724 49 00 | Fax +41 41 724 49 11  
mail@kinegram.com | www.kinegram.com

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# Outline

Automatic border control and the PKD

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Security threats & the role of manual inspection

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Challenges and opportunities for optical security solutions

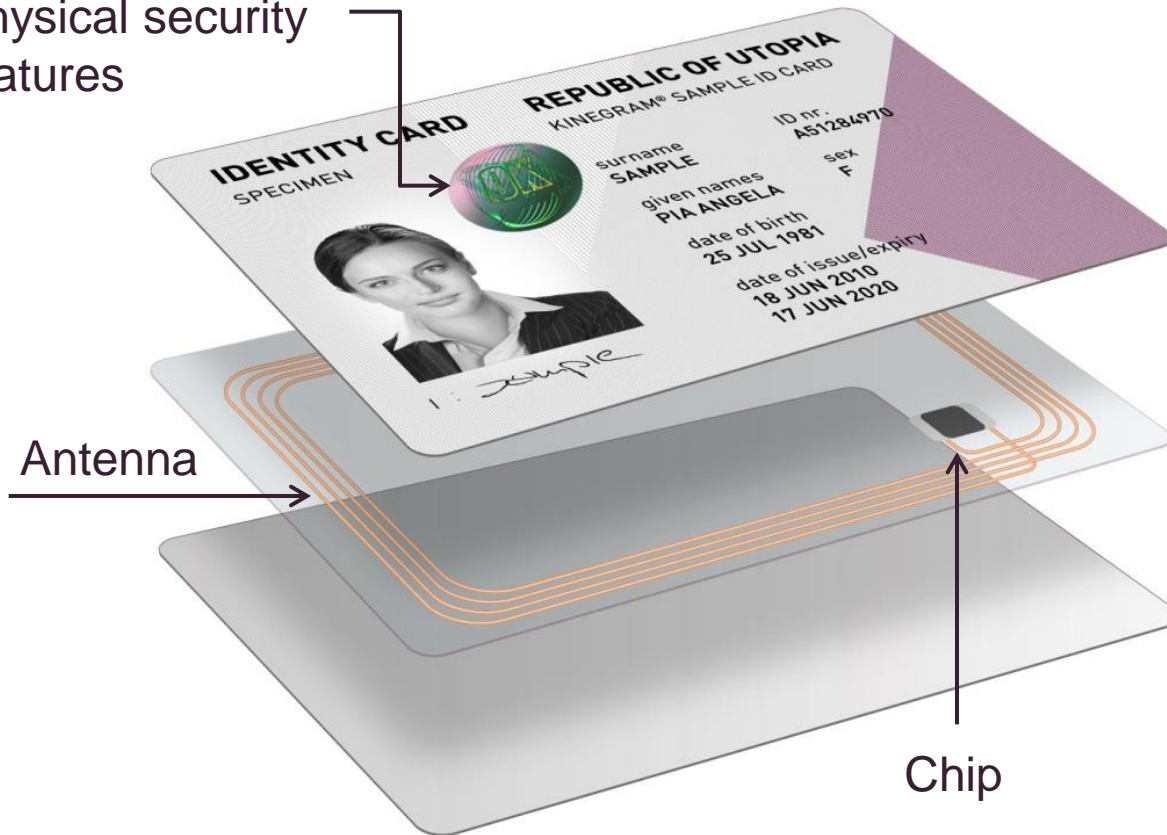
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# Automatic Border Control



# e-Travel document designs today

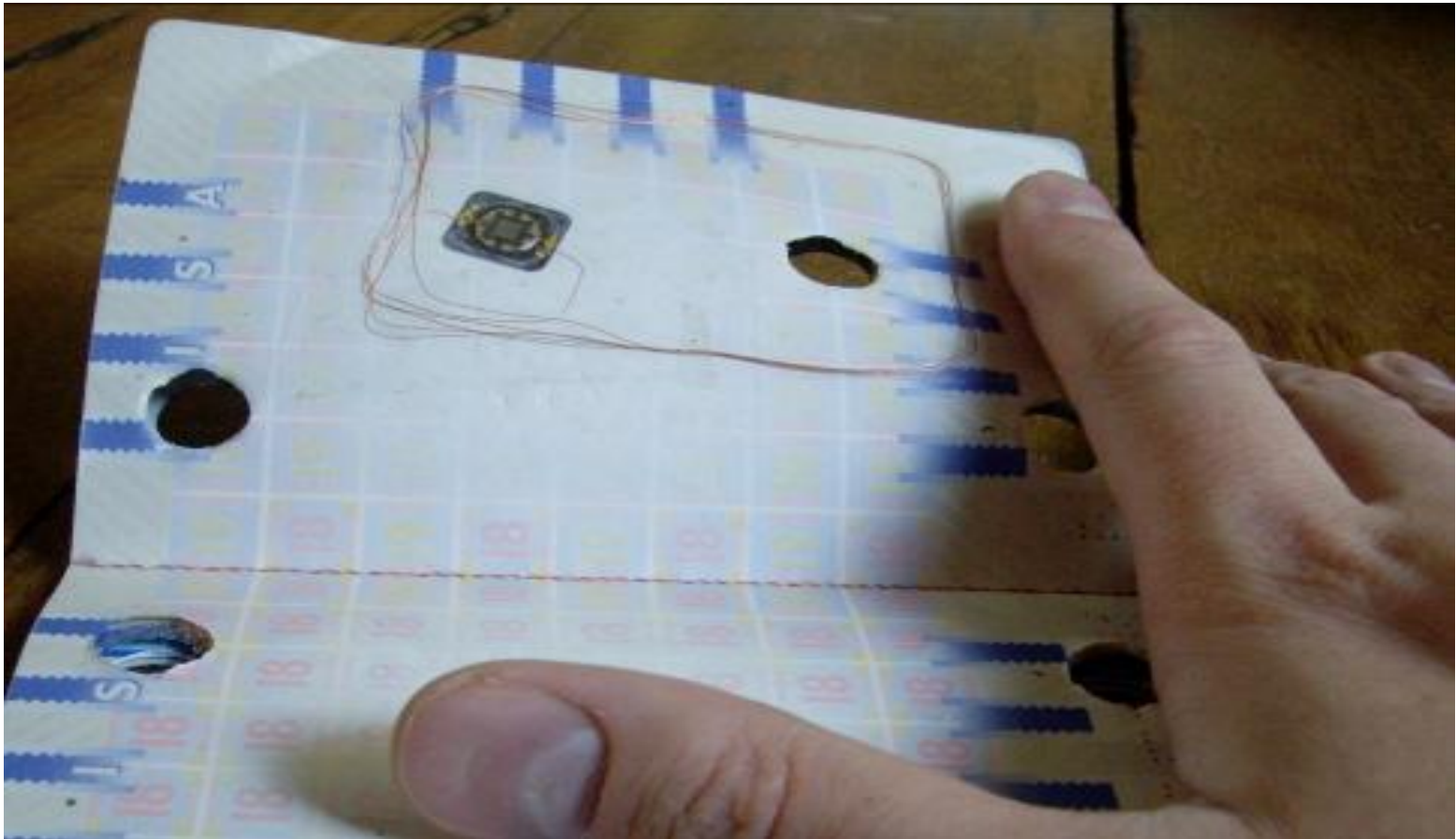
Physical security features



# Data Groups and management of keys



## Counterfeit threats



van Beek J., "ePassports reloaded goes mobile", BlackHat Europe 2009, Amsterdam

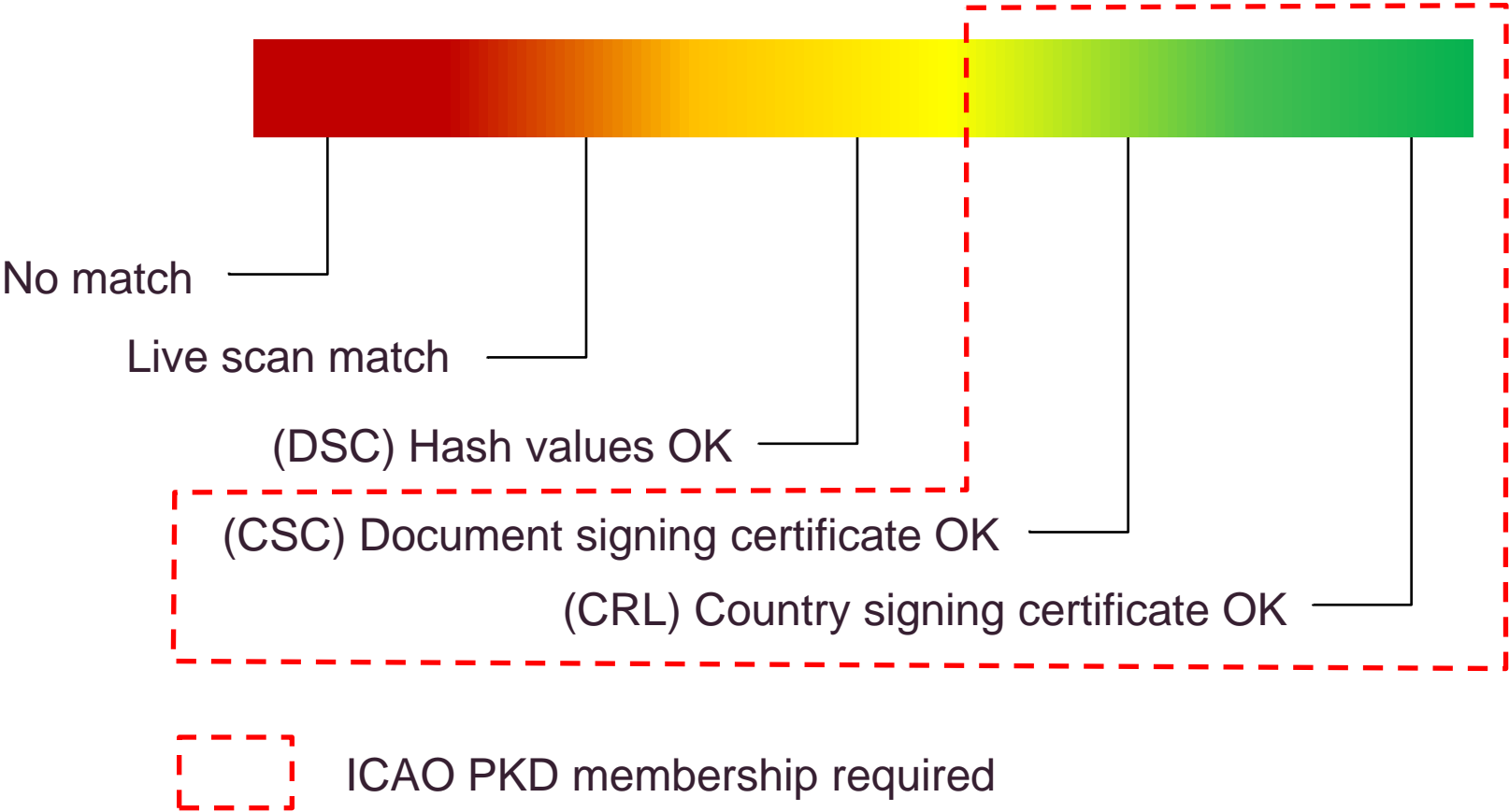


# Substitution of chip/antenna assembly



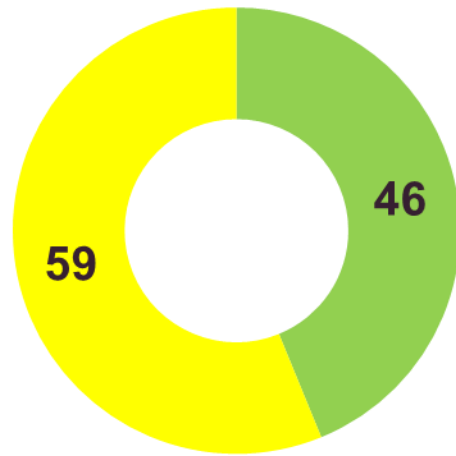
*Photograph courtesy of Canadian Border Services Agency*

# Levels of trust

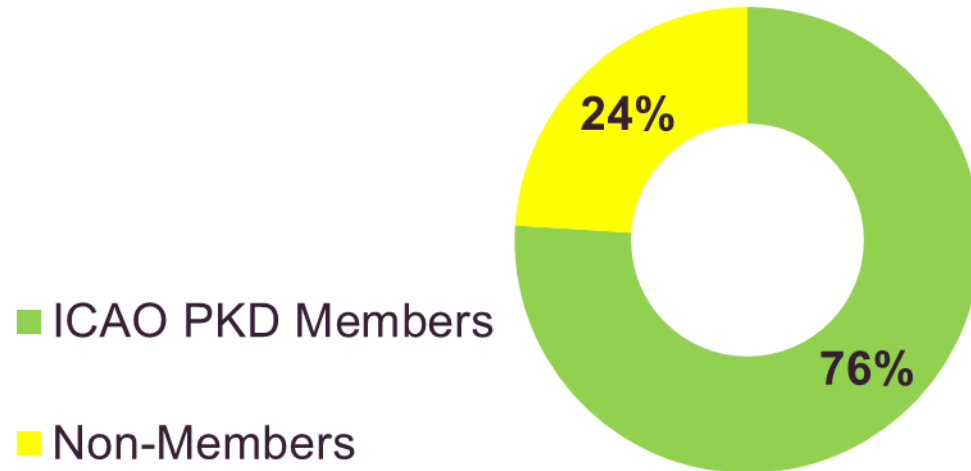


# Status of ICAO PKD membership

## 105 Countries issuing ePassports



## Percentage of ePassports in circulation



- ICAO PKD Members
- Non-Members





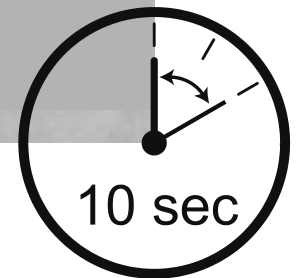
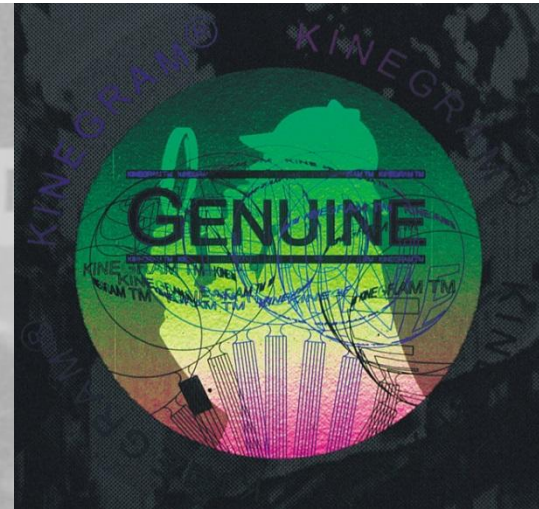


# Challenges for reliable manual inspection



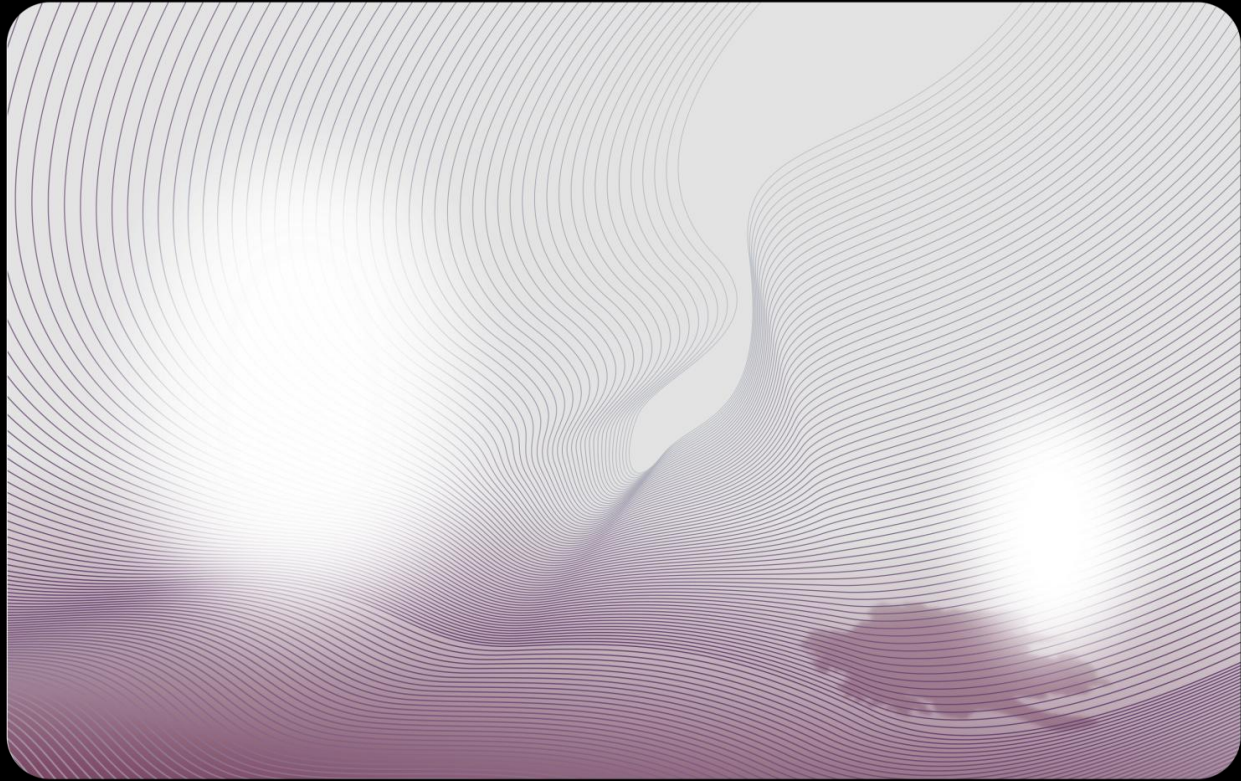
Passkontroll  
Passport control

- ▶ Knowing what security features to look for
- ▶ Knowing how to verify these



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# Integration by Design





A51284970



*P. Sample*

surname  
SAMPLE

given names  
PIA ANGELA

date of birth  
25 JUL 1981

date of issue/expiry  
18 JUN 2010  
17 JUN 2020

ID N°  
A51284970

sex  
F



REPUBLIC OF UTOPIA

A51284970



surname  
SAMPLE

ID N°  
A51284970

given names  
PIA ANGELA

sex  
F

date of birth  
25 JUL 1981

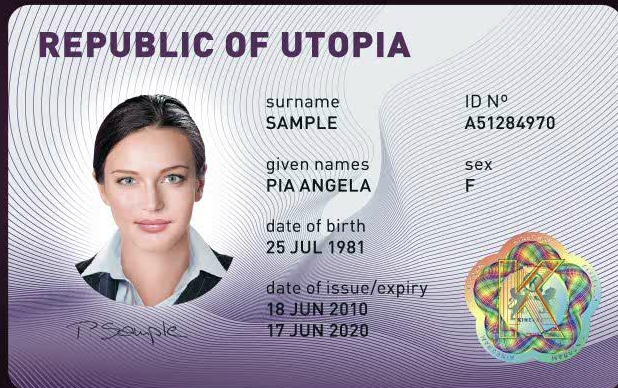
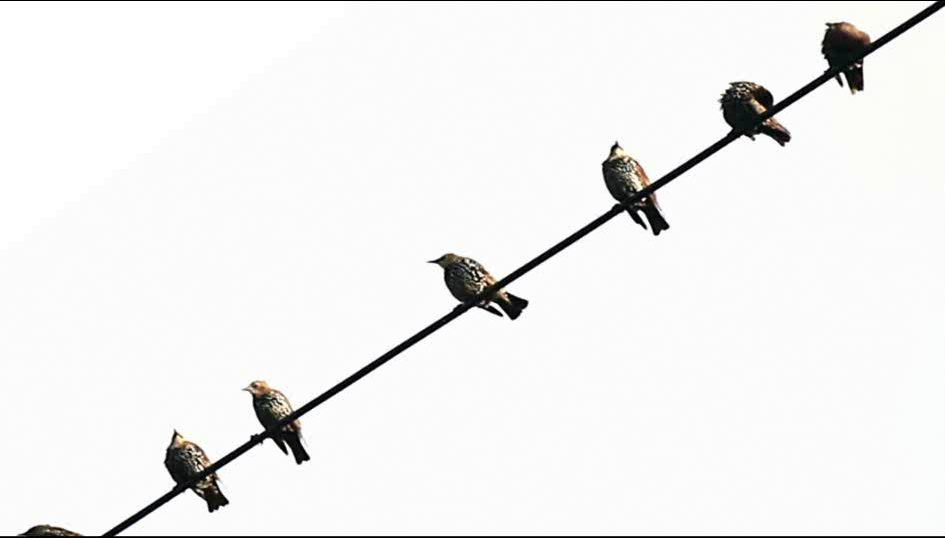
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17 JUN 2020

*P. Sample*

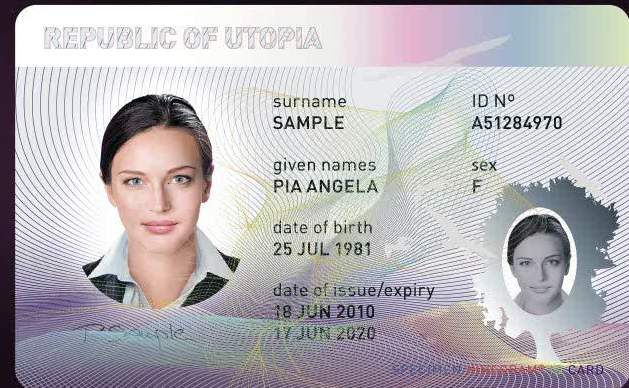


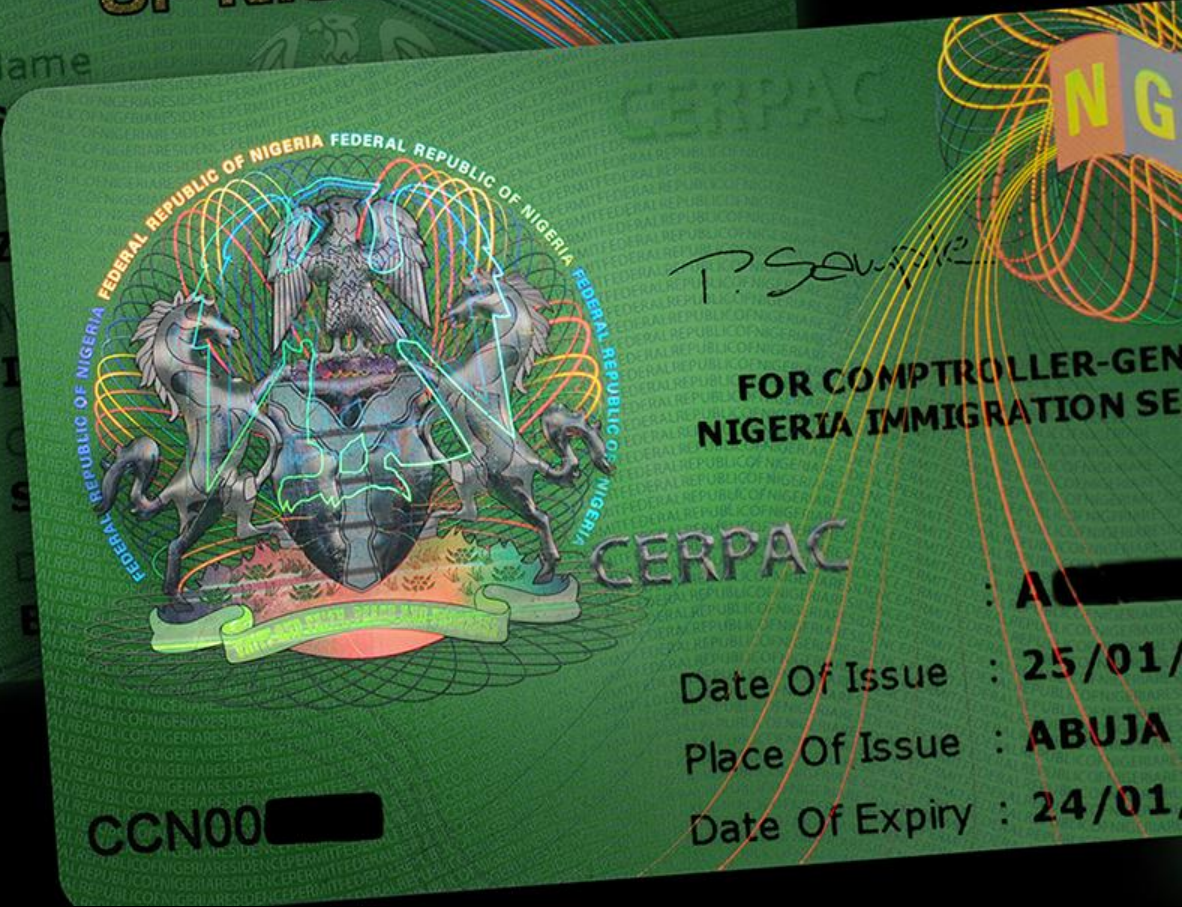
SPECIMEN KINEGRAM® TO CARD

# Single image solution



# Integrated KINEGRAM® Solution



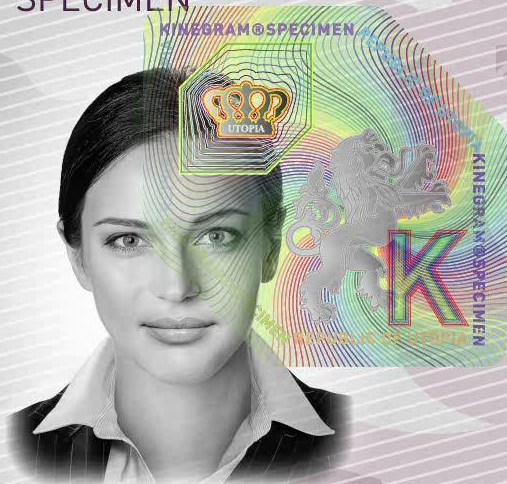


Nigeria, Resident Permit, KINEGRAM® TKO

# Integration with Electronics

# IDENTITY CARD

SPECIMEN



*T. Sample*

# REPUBLIC OF UTOPIA

KINEGRAM® SAMPLE ID CARD

surname  
**SAMPLE**

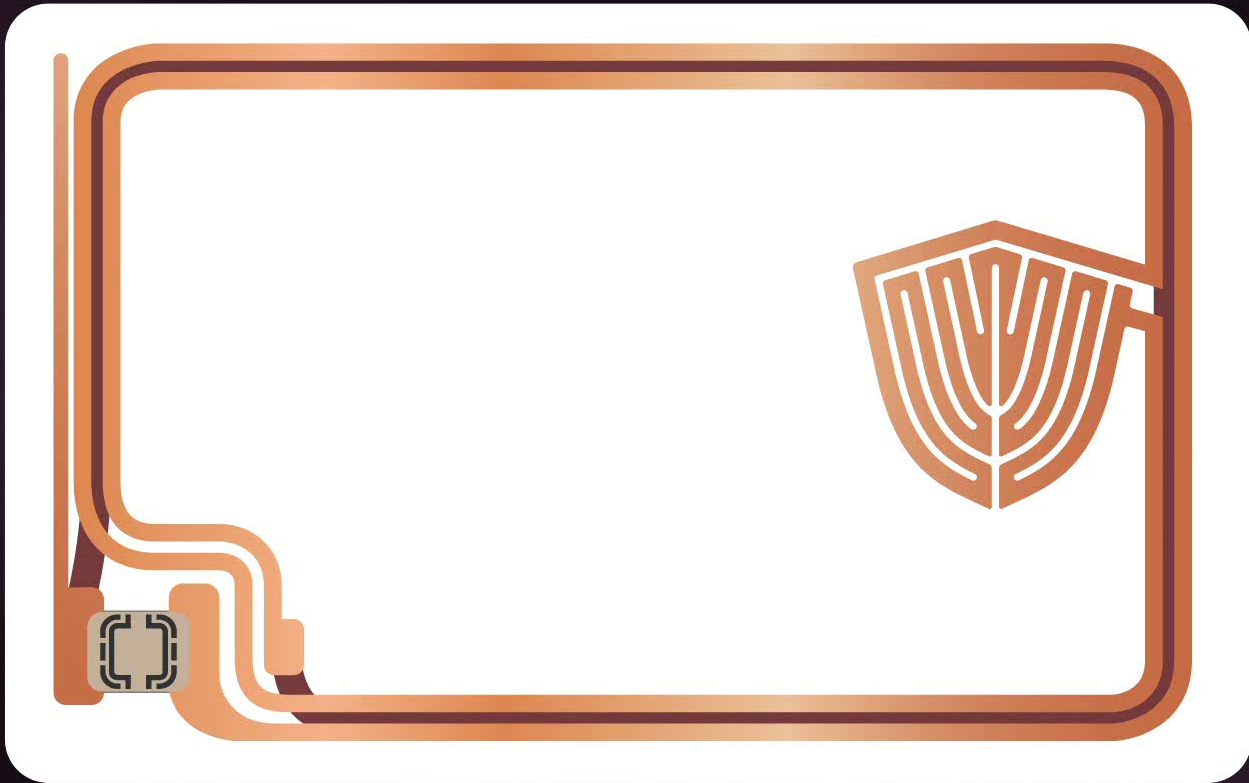
ID nr.  
**A51284970**

given names  
**PIA ANGELA**

sex  
**F**

date of birth  
**25 JUL 1981**

date of issue/expiry  
**18 JUN 2010**  
**17 JUN 2020**





OVD Kinegram AG  
Zählerweg 12  
CH-6301 Zug Switzerland  
Phone +41 41 724 47 00  
Fax +41 41 724 49 11  
[www.kinegram.com](http://www.kinegram.com)



# Summary

- Electronic document verification has great potential to increase traveller convenience and security
- Due to existing security gaps in the electronic verification process, document design concepts **MUST** continue to address the physical security of the token
- Greater security can be derived by physically interlocking optical security with the document design and the electronic components

# Thank you for your attention

To learn more contact: **Booth A01**  
Holger FJ Reinke, Regional Director Sales - Africa

[Holger.reinke@kinegram.com](mailto:Holger.reinke@kinegram.com)

OVD Kinegram AG | Zählerweg 12 | CH-6301 Zug | Switzerland  
Tel. +41 41 724 49 00 | Fax +41 41 724 49 11  
[mail@kinegram.com](mailto:mail@kinegram.com) | [www.kinegram.com](http://www.kinegram.com)

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