

## Document reader Regula 70X4M



**Full page passport reader with no moving parts inside.**

**Automatic reading and authenticity verification of passports, IDs, visas, driver's licenses and other identification documents.**

**Optical character recognition, reading of barcodes, RFID and SmartCard chips.**



A small-sized reader for desktop use. Hard plastic body (IP54). The device is connected to a PC via a USB cable. No moving parts. Reliable, convenient and easy-to-use.

The device allows capturing images in white, infrared, ultraviolet and coaxial lights. Certain models are equipped with modules for reading RFID chips and smart cards. The device is supplied with software development kit (SDK) for easy integration into existing end-user systems.

Reader Regula 70X4M can be optionally equipped with a flip-top cover.

## Functionality

- Capturing and processing images
  - supported document formats
    - ID-1
    - ID-2
    - ID-3
    - other documents with maximum size 88×128 mm
  - automatic detection of a document in a scanning zone
  - automatic scanning after document detection
  - elimination of glare from laminate and holograms in white and IR light
  - compensation of external light hitting during image capture in ultraviolet light (*Smart UV*)
  - automatic selection of UV illumination intensity according to the document type
  - search and cropping of a document image from a general image
- The MRZ detection and recognition
- Recognition and reading of 1D and 2D barcodes
- Automatic recognition of a document type
- Processing graphic fields
- OCR of the visual zone
- Reading RFID tags
- Analyzing and comparing text data
- Automatic authenticity verification of a document

## Operation

1. The optical reader automatically detects a document in the scanning area of the device.
2. Document images are captured in different illumination modes. At the same time data is read from RFID tags and smart cards.
3. **Regula Document Reader SDK** processes data.
4. Results of the verification are ready for further use.

## Application

- Border control services
- Aviation security services
- Law-enforcement agencies
- Immigration services
- Financial institutions
- Hotels
- Car rental and leasing companies
- Cellular companies
- Business centers security service
- Event-agencies
- Medical institutions
- Tourist agencies
- Ticket offices



- Visa support agencies and consulates
- Insurance companies
- Casino security service

### **Additional functions**

- A USB-port available for connecting other devices
- Programmable indicators of the device status:
  - multicolour LED indicator - red, yellow, green
  - buzzer

### **Delivery Set**

- **Regula Document Reader SDK**
- USB cable for connecting the reader to a PC

Functionality		Model								
		7004M. 100	7004M. 110	7004M. 111	7024M. 100	7024M. 110	7024M. 111	7034M. 100	7034M. 110	7034M. 111
Optical reader light sources	White	+	+	+	+	+	+	+	+	+
	Infrared 870 nm	+	+	+	+	+	+	+	+	+
	Ultraviolet 365 nm		+	+		+	+		+	+
	Coaxial white			+			+			+
Reader of radio frequency identification devices (RFID)					+	+	+	+	+	+
Smart card reader								+	+	+

## Optical reader

- Scanning area, mm — 88×128: full passport page
- Video sensor:
  - type — CMOS
  - colour model — RGB
  - colour depth, bit — 24

Number of megapixels	3,1	5
Resolution, ppi	400 ± 3%	500 ± 3%
Frame size, pixels	2048×1536	2592×1944

## Reader of radio frequency identification devices (RFID) for models Regula 7024M.XXX, 7034M.XXX

- Supported standards — ISO 14443: type A and B
- Data exchange rate, Kbaud — 106, 212, 424, 848
- Reading an RFID tag regardless of its position in the document
- Anti-collision: reading an RFID tag according to the MRZ

## Smart card reader for model Regula 7034M

- Supported standards — ISO/IEC 7816-1, -2, -3, -4; EMV2000 4.1, Level 1
- Data exchange rate, Kbaud — 2-500
- Smart card type — asynchronous, T = 0 and T = 1

## Device technical specifications

- Overall dimensions (length×width×height), mm:
  - **Regula 7004M, 7024M** — 179×160×99
  - **Regula 7034M** — 190×160×99
- Weight, not more than, kg — 0,82
- Power supply voltage from a USB port, V — 5
- USB-port supply current, A, max — 0,95

## Functionality

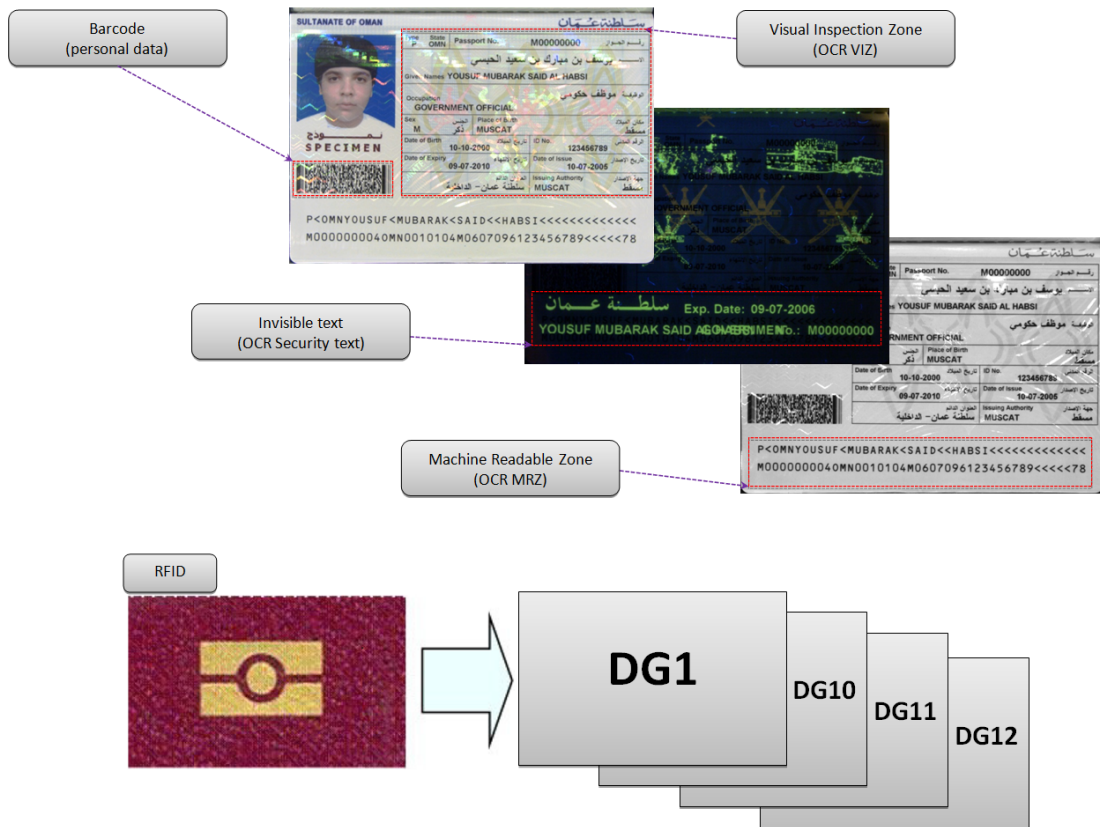


Document image capture and processing	
Document formats	<ul style="list-style-type: none"> <li>• ID-1 (identity card)</li> <li>• ID-2 (passport card, visa)</li> <li>• ID-3 (passport)</li> <li>• other document formats up to 88×128 mm</li> </ul>
Scanning process	<ul style="list-style-type: none"> <li>• document detection sensor</li> <li>• automatic scanning after document detection</li> <li>• elimination of glare from laminate and holograms for white and infrared illumination</li> <li>• compensation of external light hitting during image capture in UV light (Smart UV)</li> <li>• automatic intensity selection of UV illumination for a certain document type</li> <li>• search and cropping of a document image from a received image</li> </ul>
Machine readable zone (MRZ)	
Supported MRZ formats	<ul style="list-style-type: none"> <li>• in conformity with ICAO 9303: <ul style="list-style-type: none"> <li>◦ 44×2</li> <li>◦ 30×3</li> <li>◦ 36×2</li> </ul> </li> <li>• in conformity with ISO IEC 18013 (IDL): <ul style="list-style-type: none"> <li>◦ 30×1</li> </ul> </li> <li>• support of special MRZ data structure for documents of certain countries</li> </ul>
Features	<ul style="list-style-type: none"> <li>• search for the MRZ along the whole document image</li> <li>• MRZ recognition in infrared and white light</li> <li>• control of check digits and data structure in conformity with the requirements of ICAO 9303 and BSI TR-03105 Part 5.1</li> <li>• evaluation of MRZ quality specifications in conformity with ICAO 9303, ISO 7501, 1831, 1073-2 standards</li> </ul>
Barcodes	
Supported formats	<ul style="list-style-type: none"> <li>• 1D: Codabar, Code39 (+extended), Code93, Code128, EAN-8, EAN-13, IATA 2 of 5 (Airline), Interleaved 2 of 5 (ITF), Matrix 2 of 5, STF (Industrial), UPC-A, UPC-E</li> <li>• 2D: PDF417, Aztec Code, QR Code, Datamatrix</li> </ul>
Automatic document type recognition	
Order of document type recognition	<ul style="list-style-type: none"> <li>• Country→Type→Series</li> </ul>
Features	<ul style="list-style-type: none"> <li>• receiving a document template from the SDK database containing the following information: <ul style="list-style-type: none"> <li>◦ text and graphic fields position</li> <li>◦ availability of barcodes and security features</li> <li>◦ authenticity verification and its parameters</li> <li>◦ RFID-chip availability</li> <li>◦ a reference image from Information Reference Systems «<a href="#">Passport</a>», «<a href="#">Autodocs</a>», «<a href="#">Frontline Documents System</a>»</li> </ul> </li> <li>• processing of the received document images in compliance with the sample, including document</li> </ul>

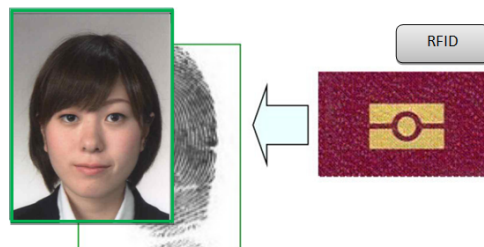
	image rotation by the angle given in the sample
<b>Graphic fields processing</b>	
Types of graphic fields	<ul style="list-style-type: none"> <li>• portrait of the document holder</li> <li>• signature</li> <li>• barcode</li> <li>• fingerprint, etc.</li> </ul>
Features	<ul style="list-style-type: none"> <li>• cropping and displaying graphic fields as separate images in compliance with the sample of the corresponding document</li> <li>• automatic searching of faces on the document image and cropping the document holder portrait if the document type is not recognized</li> <li>• document image rotation according to the document holder portrait position</li> </ul>
<b>OCR of the visual zone</b>	
Recognition of character sets	<ul style="list-style-type: none"> <li>• Central European and Eastern European Latin (1250)</li> <li>• Cyrillic (1251)</li> <li>• Western European Latin (1252)</li> <li>• Greek (1253)</li> <li>• Turkish (1254)</li> <li>• Baltic (1257)</li> <li>• other fonts of any size</li> </ul>
Features	<ul style="list-style-type: none"> <li>• dictionary support (name, surname, address, country, etc.)</li> <li>• automatic text division into separate fields (e.g. dividing the address into postal code, country, state, etc.)</li> <li>• recognition of dates with complex formats</li> <li>• recognition of characters from different character sets in one line</li> </ul>
<b>RFID SDK</b>	
Supported RFID-chip standards	<ul style="list-style-type: none"> <li>• ISO/IEC 14443-2 (type A and B)</li> <li>• ISO/IEC 14443-3 (MIFARE® Classic Protocol)</li> <li>• ISO/IEC 14443-4</li> </ul>
Data access modes	<ul style="list-style-type: none"> <li>• Direct</li> <li>• BAC</li> <li>• EAC</li> <li>• PACE</li> <li>• SAC</li> </ul>
Authentication	<ul style="list-style-type: none"> <li>• active (AA)</li> <li>• passive (PA)</li> <li>• chip (CA v1, CA v2)</li> <li>• terminal (TA v1, TA v2)</li> </ul>
Supported applications	<ul style="list-style-type: none"> <li>• ePassport (DG1–DG16)</li> <li>• eID (DG1–DG21)</li> <li>• eSign</li> <li>• eDL (DG1–DG14)</li> </ul>
Certificate management	<ul style="list-style-type: none"> <li>• local storage</li> <li>• receiving certificates online through the program interface</li> <li>• Master List, CRL support</li> </ul>
Features	<ul style="list-style-type: none"> <li>• reading RFID chips with extended length support</li> </ul>

	<ul style="list-style-type: none"> <li>• reading RFID chips in compliance with ICAO LDS 1.7, PKI 1.1 data formats</li> <li>• certified by BSI TR-03105 Part 5.1, BSI TR-03105 Part 5.2</li> </ul>
<b>Analysis and comparison of text data</b>	
Document areas for cross-checking of the readout data	<ul style="list-style-type: none"> <li>• MRZ</li> <li>• VIZ</li> <li>• RFID-chip</li> <li>• barcode</li> <li>• contact chip (Smart Card)</li> </ul>
Verification	<ul style="list-style-type: none"> <li>• validity of any dates</li> <li>• authenticity of names and surnames according to lists of wordstops</li> <li>• zero numbers of sample documents</li> </ul>
Adjustment of formats and measuring units to those used in the user OS	<ul style="list-style-type: none"> <li>• date</li> <li>• weight</li> <li>• height, etc.</li> </ul>
Features	<ul style="list-style-type: none"> <li>• complete or partial comparison of fields</li> <li>• integration of data received from several document pages</li> <li>• calculated field support (age, etc.)</li> <li>• transliteration to Latin characters in compliance with ICAO 9303 standards for comparison with the MRZ</li> </ul>
<b>Authenticity verification</b>	
Operation available for any document	<ul style="list-style-type: none"> <li>• checking luminescence (UV Dull Paper) of: <ul style="list-style-type: none"> <li>◦ the form</li> <li>◦ the MRZ area</li> <li>◦ the portrait area</li> </ul> </li> <li>• checking the MRZ print contrast in compliance with ICAO 9303(IR B900 Ink)</li> </ul>
Operations available after document type recognition	<ul style="list-style-type: none"> <li>• checking image patterns in white, IR and UV light</li> <li>• checking luminescence of UV protection fibers</li> <li>• detection of false luminescence</li> <li>• checking photo embedding type: printing or attachment</li> <li>• checking IR Visibility of: <ul style="list-style-type: none"> <li>◦ elements of the form</li> <li>◦ text data</li> <li>◦ the photograph (main and additional)</li> </ul> </li> <li>• detection of holograms (OVD), OVI</li> <li>• reading a luminescent text and comparing it with the data obtained from the MRZ and VIZ (OCR Security Text)</li> <li>• visualization of IPI (Invisible Personal Information)</li> <li>• checking retroreflective protection</li> <li>• checking barcode format</li> </ul>
Features	<ul style="list-style-type: none"> <li>• checking operations are adjusted to documents with different degrees of wear and tear</li> <li>• the choice of checking operations depends on security features available in a questioned document</li> </ul>
<b>Additional SDK functions</b>	
Image formats	<ul style="list-style-type: none"> <li>• .BMP</li> </ul>

	<ul style="list-style-type: none"> <li>• .JPG</li> <li>• .JP2</li> <li>• .PNG</li> <li>• .TIF</li> <li>• other image formats are possible on request</li> </ul>
Interoperability	<ul style="list-style-type: none"> <li>• comparison modules: <ul style="list-style-type: none"> <li>◦ fingerprint images from RFID chip and external fingerprint scanner</li> <li>◦ face images from document data page and/or RFID chip</li> </ul> </li> <li>• Information Reference Systems «<a href="#">Passport</a>», «<a href="#">Autodocs</a>», «<a href="#">Frontline Documents System</a>»</li> </ul>
OS compatibility	<ul style="list-style-type: none"> <li>• Microsoft Windows XP (SP3), Windows 7 (x86, x64), Windows 8, Windows 10</li> </ul>
Drivers	<ul style="list-style-type: none"> <li>• Microsoft certified</li> </ul>
Features	<ul style="list-style-type: none"> <li>• simultaneous optical scanning and RFID chip reading</li> <li>• firmware upgrade via USB interface (automatic upgrade after installing new SDK version)</li> <li>• multilingual interface</li> </ul>
<b>Software updates</b>	
SDK	<ul style="list-style-type: none"> <li>• twice a year</li> </ul>
Document template database	<ul style="list-style-type: none"> <li>• monthly</li> </ul>

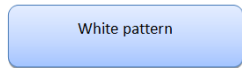


Document data readout: textual data readout



Document data readout: graphic data readout





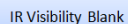
White image

White pattern

IPI

## Comparing text data

Performed security checks in white light



White image

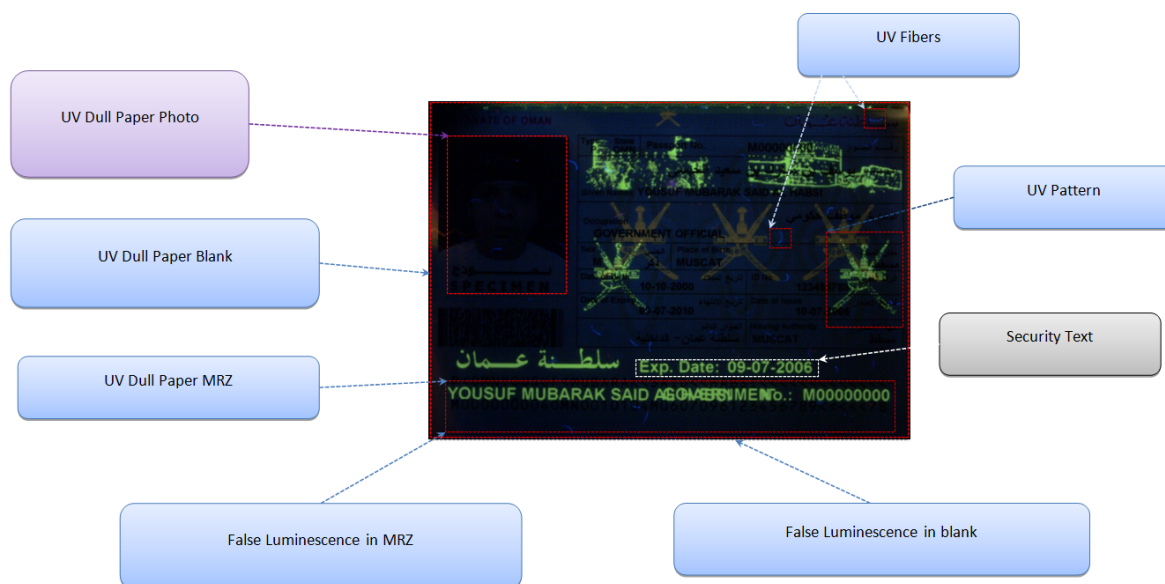
IR Visibility Fill

IR image

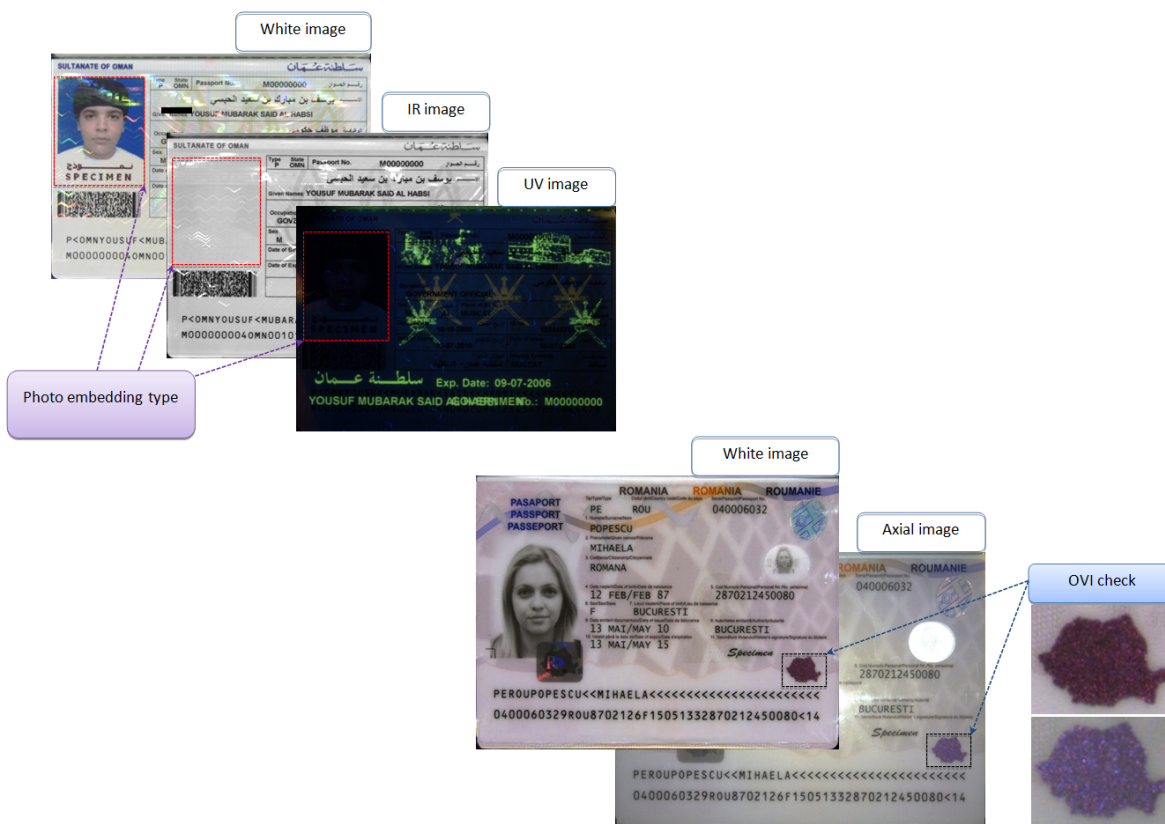
### IR Visibility Photo and Ghost image

IR B900

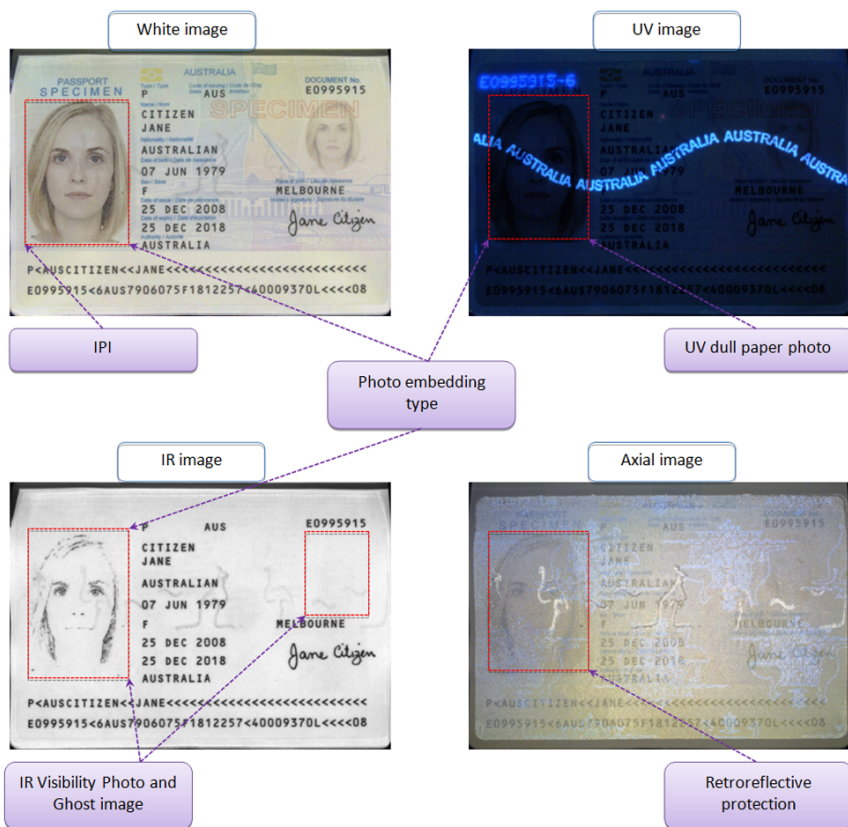
Performed security checks in infrared light



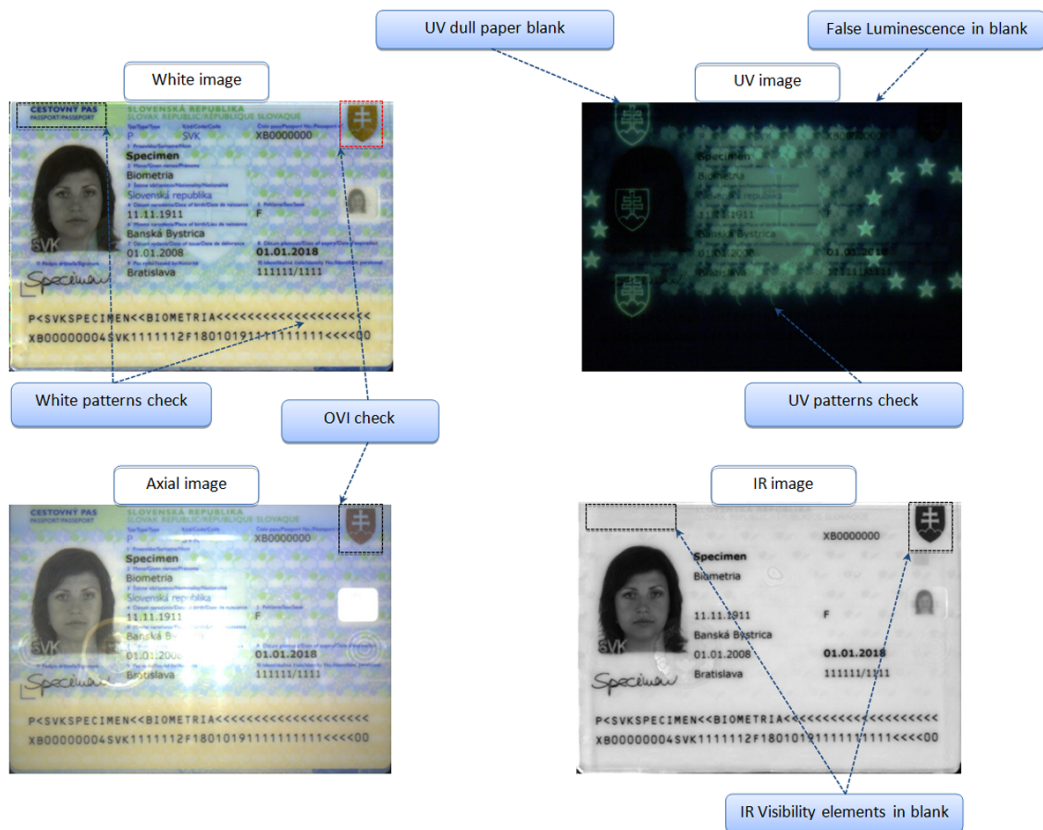
Performed security checks in ultraviolet light



Performed security checks in different lights

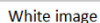


Checking photo embedding type: printing or attachment



Checking the blank of the document





IR image

### Personal data comparison

IR visibility fill

IR B900

UV image

Axial image

False luminescence in  
personal data

OCR Security text

UV dull paper in MF

### Retroreflective protection

[illegible]

### Viewing the passport from IRS database



MRZ zone of the passport



### Visual zone of the passport



The screenshot displays the 'Document Reader' application interface, which is used for processing and analyzing documents, specifically ePassports. The interface is divided into several main sections: 1. \*\*Top Bar\*\*: Contains standard application menus (File, View, Help) and status indicators for 'Connected', 'Process', 'Read PDF', 'Options', and 'Documents DB'. 2. \*\*Left Panel (Images)\*\*: Shows three processed images of the passport holder: 'WHITE' (standard photo), 'IR' (infrared photo), and 'UV' (ultraviolet photo). Below these is a large, detailed view of the passport's data page, showing fields like 'Passport No.', 'Surname', 'Given names', 'Date of birth', 'Date of expiry', and 'Issuing authority'. 3. \*\*Main Panel (Details)\*\*: This section provides a comprehensive analysis of the document. It includes tabs for 'Details', 'Documents Database (PDFS)', 'MRZ', 'Visual zone', 'RFID-Chip', 'Text data comparison', 'Graphic data comparison', 'Security Features', and 'Messages log'. The 'MRZ' tab is currently active, displaying the Machine Readable Zone data and a list of 'MRZ Lines'. The 'RFID' tab shows the 'RFID (Parsed data)' and 'RFID (Binary data)'. The 'Security Features' tab is also visible. 4. \*\*Bottom Panel (Results)\*\*: This section provides a summary of the document's characteristics and processing results. It includes fields for 'Document Class', 'Issuing State', 'Document type', 'PM', 'KOR', 'Republic of Korea - ePassport #2', 'Document #', 'Date of birth', 'Date of expiry', 'Sex', 'Surname And Given Names', and 'HONG KIL DONG'. It also features a 'Results' section with a 'Overall result' (green circle) and a 'Security Features' section with a 'Security Features' (green circle). The 'Overall result' is further detailed in the 'Overall result' tab, showing a 'DG' (Document Grade) of 12345678910111213141516 and a list of security features: 'EF.COM', 'EF.SOD', 'EF.CVCA'. The 'Security Features' tab shows a list of features: 'BAC', 'PACE', 'CA', 'TA', 'AA', 'PA'. The interface is designed to be user-friendly, with clear labels and intuitive navigation. The status bar at the bottom indicates 'Document processing is finished' and shows system information like '004.223', 'DR SOD v.4.8', and 'RFID SOD v.3.1'.

RFID-chip of the passport

The screenshot displays a document reader application with a menu bar (File, View, Help) and a toolbar (Connect, Disconnect, Process, Read PDF, Options, Documents DB). The main area shows three passport images: WHITE, IR, and UV. Below these is a large passport scan of a Korean passport for HONG KIL DONG, born 01 JAN 1975, with passport number M24403909. The passport details are as follows:

Field type	MRZ	Visual zone OCR	RFID-chip	MRZ <-> Visual	MRZ <-> RFID	RFID <-> Visual zone	Valid
Document Class Code	PM	PM	PM	●	●	●	●
Issuing State Code	KOR	KOR	KOR	●	●	●	●
Document #	M24403909	M24403909	M24403909	●	●	●	●
Date of expiry	10.03.2018	10.03.2018	10.03.2018	●	●	●	●
Date of issue	10.03.2008	10.03.2008	10.03.2008	●	●	●	●
Date of birth	01.01.1975	01.01.1975	01.01.1975	●	●	●	●
Personal #	1234562V197881	1234562V197881	1234562V197881	●	●	●	●
Surname	HONG	HONG	HONG	●	●	●	●
Given names	KIL DONG	KIL DONG	KIL DONG	●	●	●	●
Sex	M	M	M	●	●	●	●
Surname And Given Names	HONG KIL DONG	HONG KIL DONG	HONG KIL DONG	●	●	●	●
Nationality Code	KOR	KOR	KOR	●	●	●	●
MRZ Lines	PMKORHONG<<KIL<DONG<< 1234562V197881 M24403909KOR7501012M18031051234562V19788148	PMKORHONG<<KIL<DONG<< 1234562V197881 M24403909KOR7501012M18031051234562V19788148	PMKORHONG<<KIL<DONG<< 1234562V197881 M24403909KOR7501012M18031051234562V19788148	●	●	●	●
Check digit of document number	7	7	7	●	●	●	●
Check digit of birth date	2	2	2	●	●	●	●
Check digit of expiry date	5	5	5	●	●	●	●
Check digit of personal #	4	4	4	●	●	●	●
Final check digit	8	8	8	●	●	●	●
Age	39	39	39	●	●	●	●
Months to expire	46	46	46	●	●	●	●

The application also includes a 'Details' tab with a 'Documents Database (PDFS)' section and a 'Visual zone' tab. The 'Visual zone' tab shows a large passport scan with the following details:

대한민국 REPUBLIC OF KOREA  
여권 PASSPORT  
종류/Type: PM  
발행국/Issuing country: KOR  
성명/Surname: HONG  
이름/Given names: KIL DONG  
국적/Nationality: REPUBLIC OF KOREA  
생년월일/Date of birth: 01 JAN 1975  
성별/Sex: M  
발급일/Date of issue: 10 MAR 2008  
기권만료일/Date of expiry: 10 MAR 2018  
주체등록번호/Personal No: 1234562  
발행권한/Authority: MINISTRY OF FOREIGN AFFAIRS AND TRADE  
홍길동

The application also includes a 'Results' section with a table showing the results of the document processing:

Document Class	Issuing State	Document type
PM	KOR	Republic of Korea - ePassport #2
Document #	M24403909	Date of birth
Surname And Given Names	HONG KIL DONG	Date of expiry
Sex	M	Sex

The application also includes a 'Visual zone' tab with a 'Visual zone' section showing a large passport scan with the following details:

대한민국 REPUBLIC OF KOREA  
여권 PASSPORT  
종류/Type: PM  
발행국/Issuing country: KOR  
성명/Surname: HONG  
이름/Given names: KIL DONG  
국적/Nationality: REPUBLIC OF KOREA  
생년월일/Date of birth: 01 JAN 1975  
성별/Sex: M  
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PM	KOR	Republic of Korea - ePassport #2
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Surname And Given Names	HONG KIL DONG	Date of expiry
Sex	M	Sex

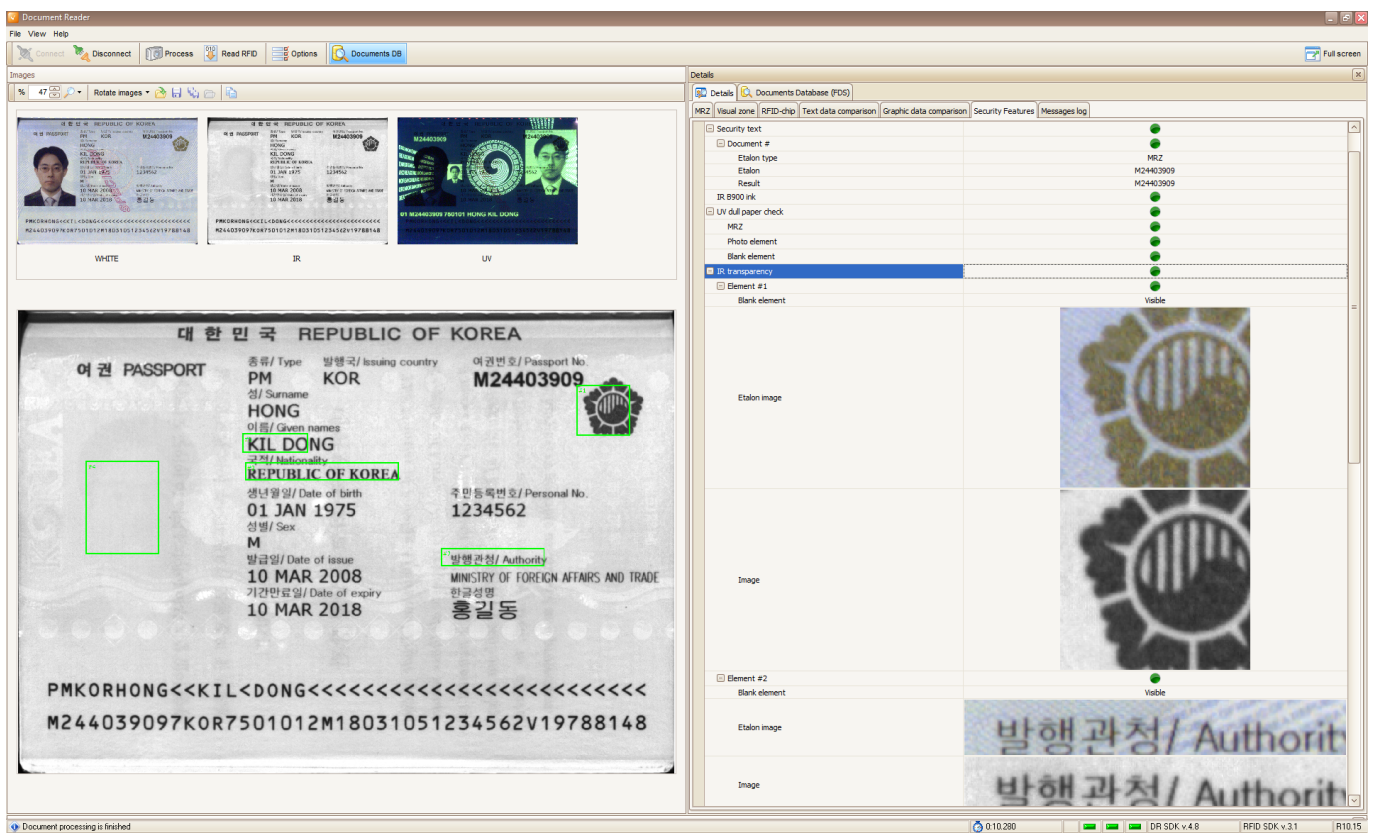
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여권 PASSPORT  
종류/Type: PM  
발행국/Issuing country: KOR  
성명/Surname: HONG  
이름/Given names: KIL DONG  
국적/Nationality: REPUBLIC OF KOREA  
생년월일/Date of birth: 01 JAN 1975  
성별/Sex: M  
발급일/Date of issue: 10 MAR 2008  
기권만료일/Date of expiry: 10 MAR 2018  
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발행권한/Authority: MINISTRY OF FOREIGN AFFAIRS AND TRADE  
홍길동

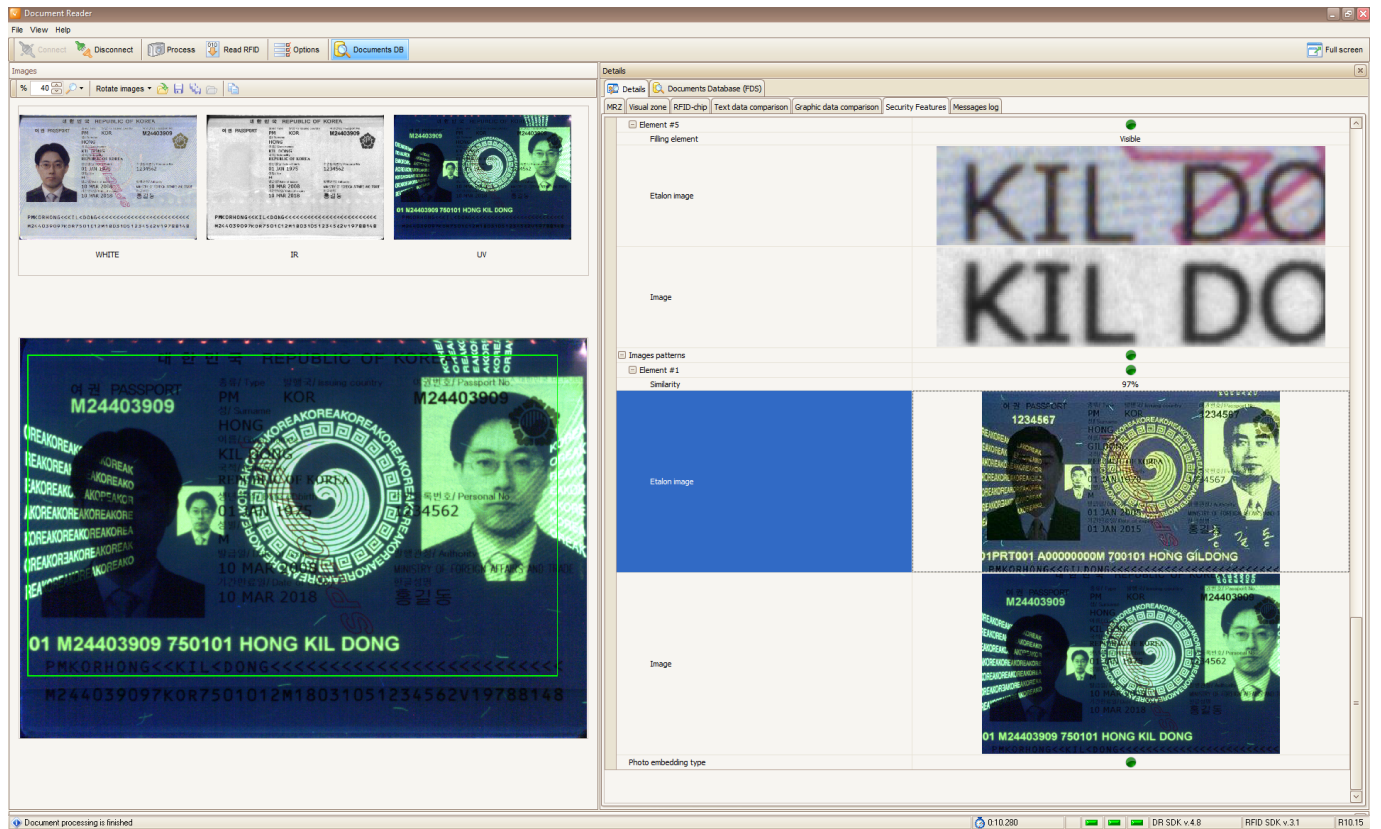
Text data comparison of the passport



Graphic data comparison of the passport



Security features of the passport



Security features of the passport