Video spectral comparator Regula 4305DMH



The device is intended for advanced authenticity verification of passports, ID cards, travel documents, visa stamps and seals, including but not limited to entry permits, driver's licenses, vehicle registration certificates and other vehicle related documents, banknotes, revenue and special stamps, securities and other documents with security features.

The comparator is constructed as a single unit for desktop use in aluminum metal body. It is equipped with a built-in RFID reader. The device has a spacious working area over the object stage, clamps for fixing examined documents and a special shield protecting from harmful effects of ultraviolet radiation.

The device is operated via the front panel with control buttons or/and Regula Forensic Studio software. The control buttons are responsible for the activation of light sources and adjustment of camera parameters in different examination modes. The latter are displayed on the LCD display.

Video spectral comparator **Regula 4305DMH** is equipped with a torch and a modified 10x magnifier Regula 1003M with two white light sources. The front panel of the device has a port for connection of a UV bottom lighter, three available USB-2.0 ports — for additional external devices, such as a spectral luminescent magnifier Regula 4147 used in anti-Stokes examination, thermostage Regula 4168 or a magneto-optical visualizer Regula 4197.

Functionality

- Obtaining and processing of images
- Reading RFID tags
- Examinations on different levels
    - **protection of the document basis**
        - paper opacity, watermarks, security fibers, planchetes, security threads, foil stamping, pole feature, all types of windows, transparent vanish coating, shadow images, etc.
    - **printing methods**
        - *intaglio*: texts, guiloche frames, rosettes and vignettes, microprinting, latent images and moire patterns, signs for the visually impaired, blind embossing, colour shifting ink, including OVI with embossing and latent images, etc.
        - *letterpress*: serial numbers, texts, barcodes, etc.
        - *offset printing*including Orlov and rainbow printing: texts, microprinting, moire patterns, background and anti-copy patterns, etc.
        - *screen printing*: security features with optically variable effects, etc.
        - see-through register
        - perforation
    - **physicochemical protection**
        - anti-Stokes luminescence
        - UV luminescence with different wavelength
        - IR luminescence
    - **complex security features**:
        - holographic images, OVD
        - retroreflective protection
        - security features with IR-metameric ink
        - special polymer coating of security laminates
        - laser engraving
- **Additional examination of**
    - fragments of document images depending on the degree of absorption or reflection of IR light
    - document alterations such as erasure, etching etc.
    - traces of signature forgery
    - extraneous lines (do not originally belong to the examined object) that are performed with IR opaque inks
    - blurred, crossed out entries, texts and images
    - document mechanical defects such as cuts, tears, folds, etc.
- **Optionally:** detection of security elements with magnetic properties; including blurred and crossed out texts by **Regula 4197**

Application

- Border control and immigration services
- Customs authorities

- Law-enforcement agencies
- Forensic laboratories
- Financial institutions
- Other agencies and organizations authorized to check documents

Delivery Set

- Torch spotlight
- Magnifier Regula 1003M
- Software **Regula Forensic Studio** for displaying video, device control, storing and processing of images
- UV bottom lighter
- Clamps for fixing examined documents
- Optionally:
    - PC
    - Case for device transportation

Light sources*		
White	incident	
	2 oblique	
	23 oblique for hologram examination	
	external oblique	
	coaxial	
	bottom with adjustable intensity	
Ultraviolet, nm	incident	254
		313
		365
		400
	bottom (external)	365
Infrared, nm	incident	700
		870
		950
	2 oblique	870
	bottom with adjustable intensity	870
High-intensity incident, nm	royal blue	450
	blue	470
	cyan	505
	green	530
	amber	590

** – all light sources are LEDs except ultraviolet 313, 254 nm*

Specifications			
Video camera	video signal type and resolution		4 Mp, CMOS, USB (YUV)
	magnification, times:	optical	20
		digital	2
		on-screen	100*
	maximum field of view, mm		(219±15)×(124±15)
Video output parameter	maximum resolution, pixels		1920×1080 (Full HD)
	frame rate with maximum resolution, frame/sec		25
Connection interface			USB 3.0

** – all magnifications are approximate and based upon a 24 inch monitor*

Camera filters:

- fixed with bandpass, nm — 420–1100
- automatically installed with threshold, nm:
  - IR low-pass — 700
  - IR high-pass — 600, 650, 700

RFID reader:

- standards — ISO 14443: A and B types of RFID tags
- PC/SC-protocol support
- data exchange rate, Kbaud — 106, 212, 424, 848
- reading an RFID tag regardless of its position in the document
- anticollision: reading an RFID tag according to the MRZ

Maximum document size, mm — 210×300 (A4)

OS — Microsoft Windows 10

ICAO MRZ reading for ID-1, ID-2, ID-3 documents — Yes

RFID reader (ISO 14443) — Yes (built-in)

1D and 2D Barcodes — Yes

QR — Yes

Hidden image (IPI) — Yes

Dimensions (length×width×height), mm — 380×260×420

Weight, kg — 10,5

Power supply, V — 12 ± 2

Power consumption, W — 60

Optionally: power supply through vehicle on-board system 12 V

PC requirements

- Minimum configuration:
  - OS — Microsoft Windows 10
  - processor — Intel® Core™ i5 3.0 GHz
  - RAM, GB — 4
  - minimum free disk space, GB — 1
  - display resolution, pixels — 1600×1200
  - connection interface — USB 3.0
- Recommended configuration:
  - OS — Microsoft Windows 10
  - processor — Intel® Core™ i7 3.4 GHz
  - RAM, GB — 16
  - minimum free disk space, GB — 1
  - display resolution, pixels — 1920×1200 or higher
  - connection interface — USB 3.0

1. Spectral luminescent magnifier Regula 4147

Light sources:

- incident white
- 2 high-intensity infrared 980 nm: spot and flood



Field of view, mm — 12×9 (±1)

Sensor:

- type — CMOS
- megapixels — 3,1:
    - frame size, pixels — 2048×1536

Camera filters — IR low-pass with threshold, nm — 660

Connection interface — USB 2.0

Dimensions (length×width×height), mm, not more than — 94×62×52

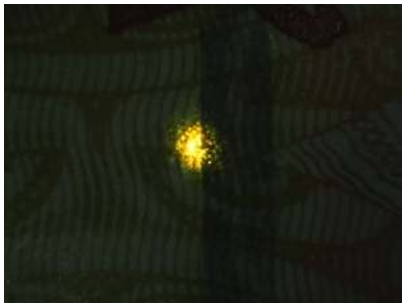
Weight, kg, not more than — 0,2

Power supply voltage, V — 5

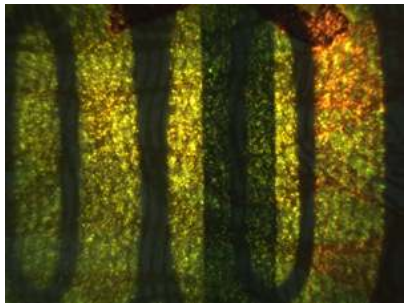
Power consumption, W, not more than — 12,5



Incident white



High-intensity infrared 980 nm: spot



High-intensity infrared 980 nm: flood

2. Thermostage Regula 4168

Functionality



- Examination of images and elements of banknotes and travel documents containing thermochromic ink at different temperatures.
- Examination of a composite security feature Feel®-ID developed by Giesecke & Devrient company. Feel®-ID is based on optically variable and thermochromic effect.

Temperature range, ˚C — +30...+80 with a step of 1 ˚C

Heated area (length×width), mm — 78×48

Dimensions (length×width×height), mm — 170×78×16

Weight, kg — 0,25

Power supply voltage: powered by the USB port of the video comparator, V — 5

Power consumption, W, max — 15



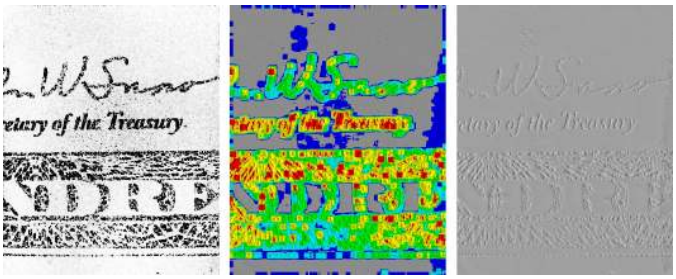
Temperature +20 ˚C | Temperature +35 ˚C | Temperature +50 ˚C

3. Visualizer of magnetic properties Regula 4197

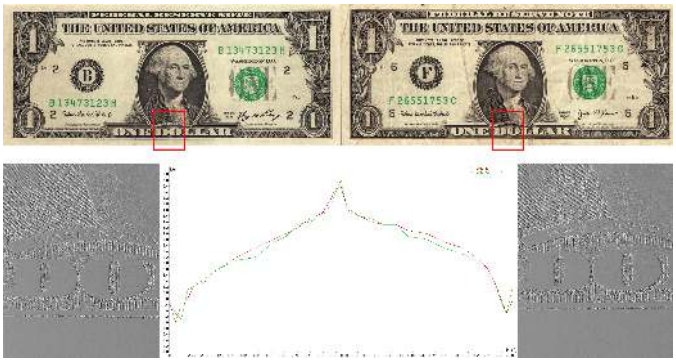
Functionality

- Examination of magnetic security features in banknotes and travel documents in the mode of live video
- Visualization of magnetically hard and magnetically soft materials
- Possibility to distinguish magnetic inks by residual magnetization
- Carrying out non-destructive examination of objects with “hard” magnetic properties
- Reading latent magnetic strokes and codes
- Examination of damaged documents: reading blurred and crossed out texts printed with magnetic ink
- *Possibility to take magnetic ink intensity measurements in tesla (T)*





Black & White. Colour (magnetization intensity pattern). Raw



Magnetic measurements

Field of view, mm — 14×18

Spatial resolution of the optical input system, mkm:

- frame size 1024×1280 pixel — 14
- frame size 512×640 pixel — 28

Connection interface — USB

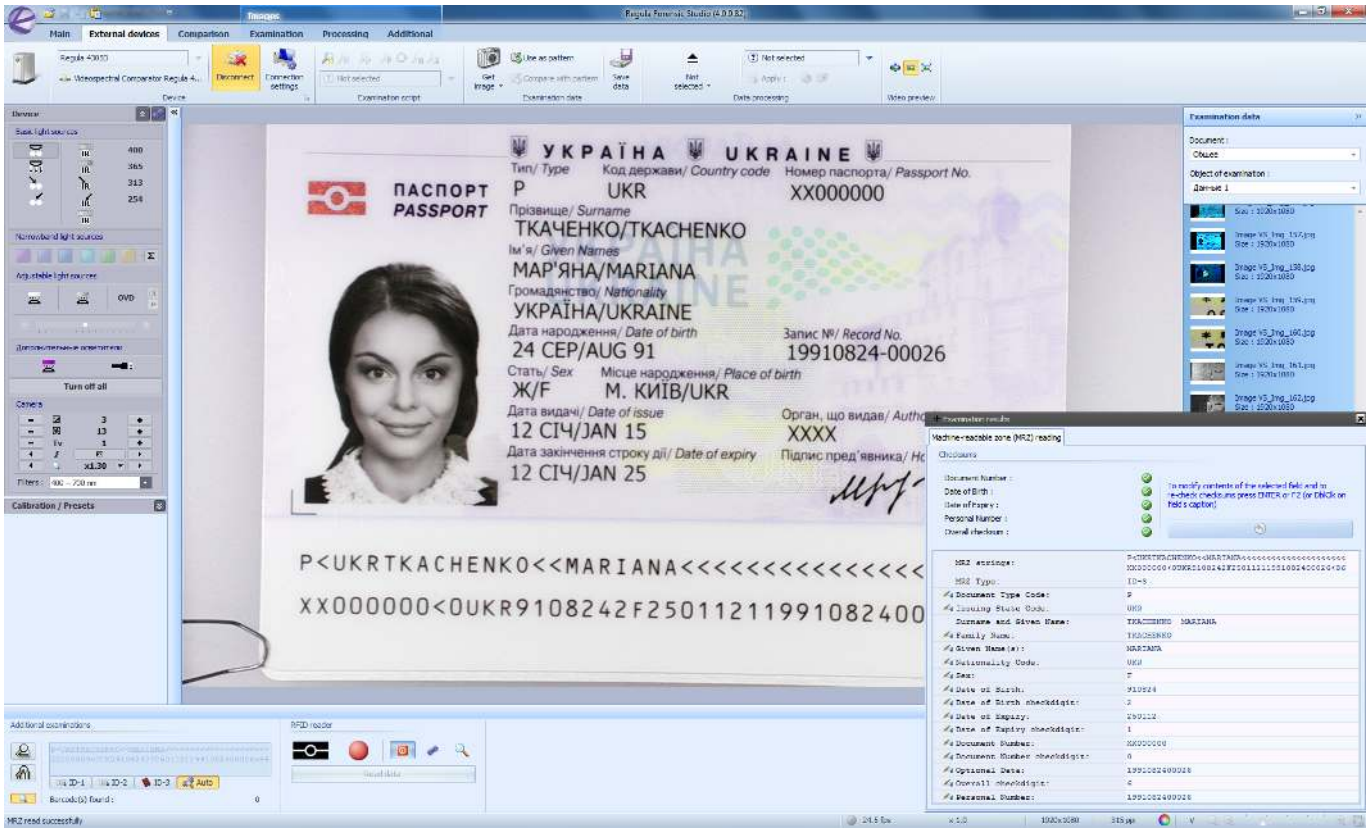
OS — Microsoft Windows 10

Dimensions (length×width×height), mm — 59×113×50

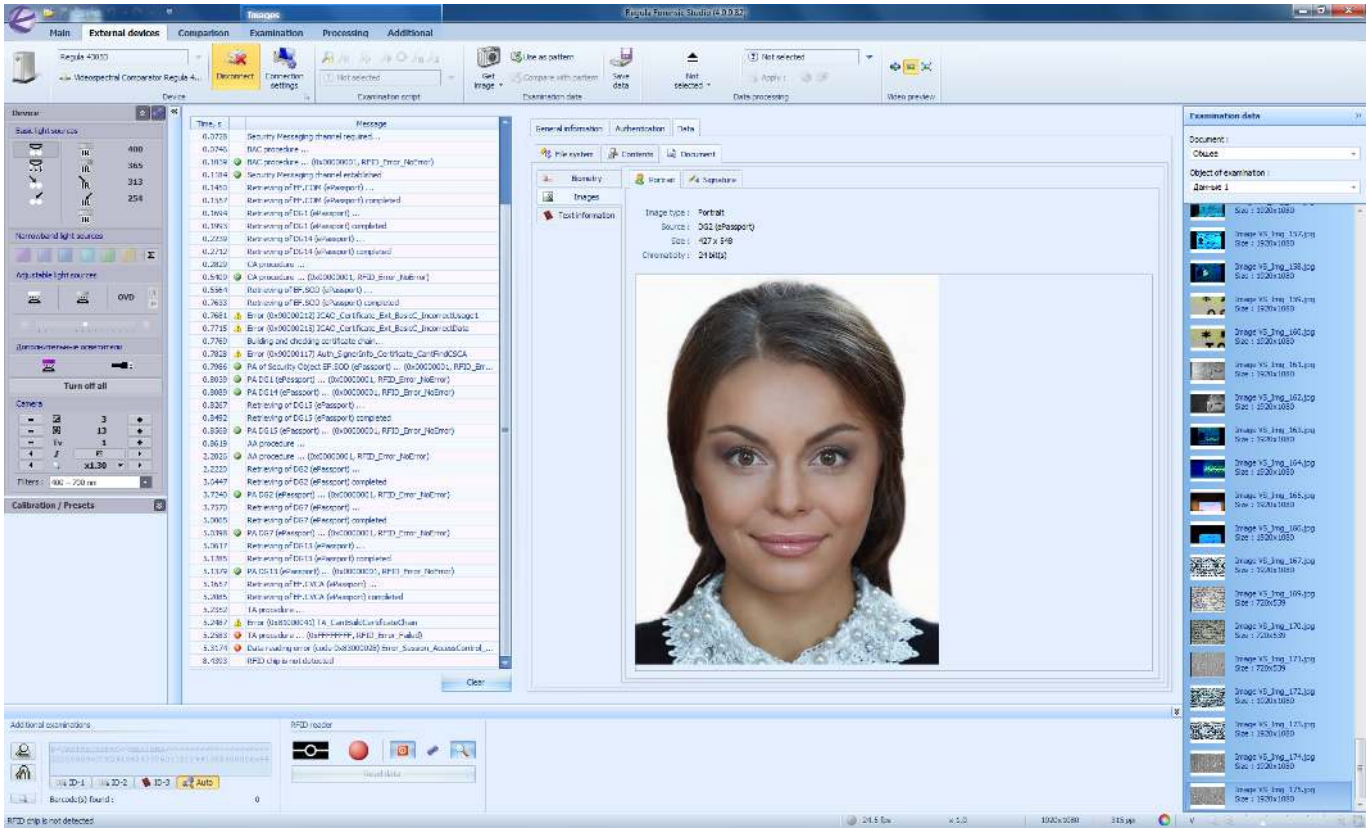
Weight, kg — 0,49

Power supply voltage from a USB port, V — 5

Power consumption, W, max — 2,5



MRZ reading



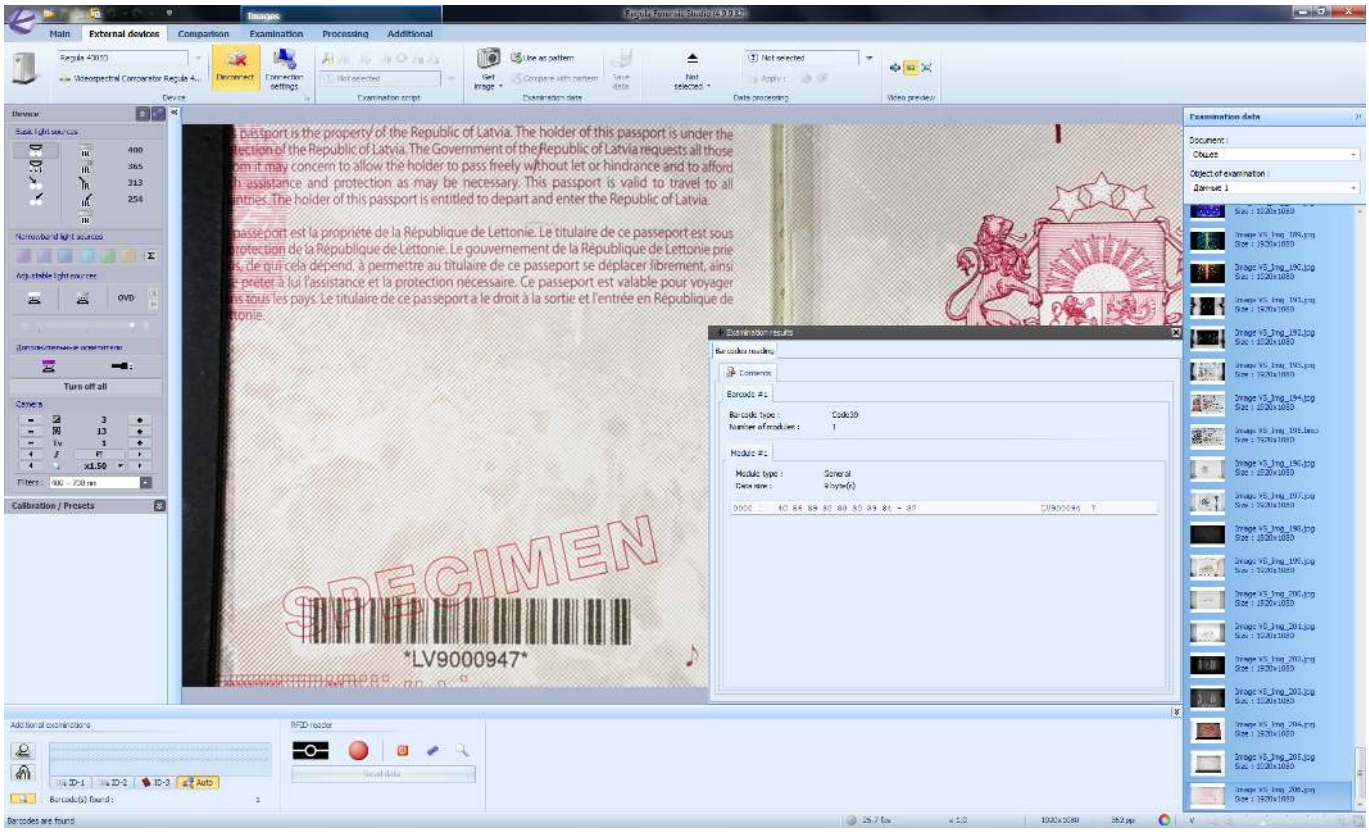
RFID reading



IPI reading



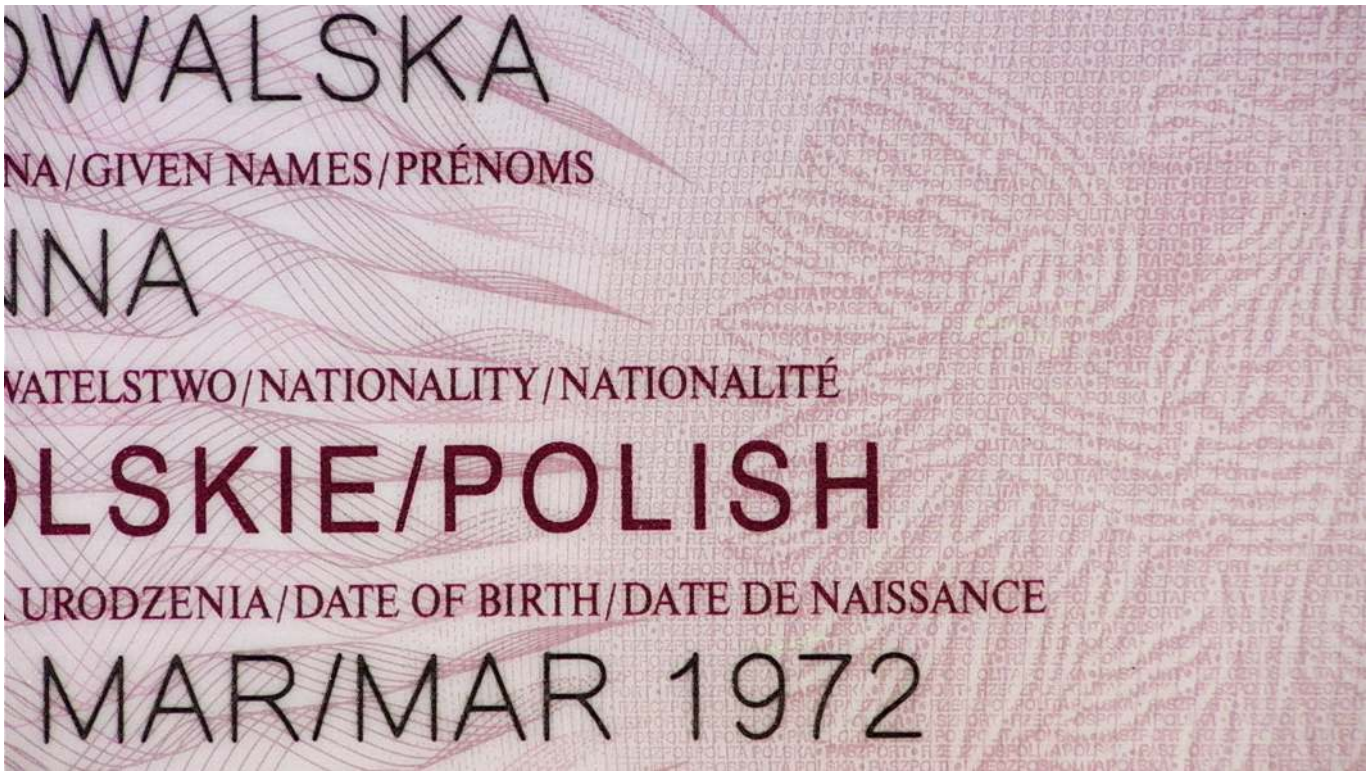
IPI reading



Barcode reading



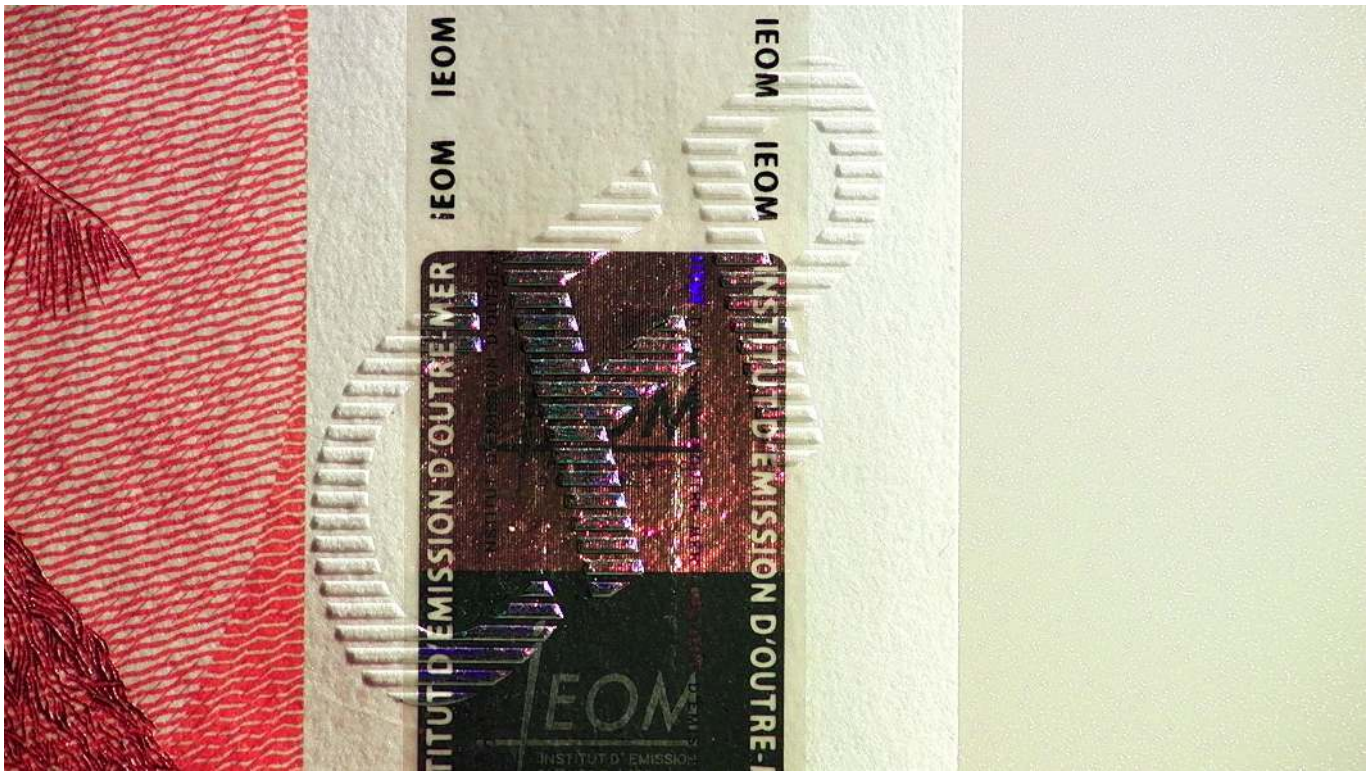
Incident white light 1x



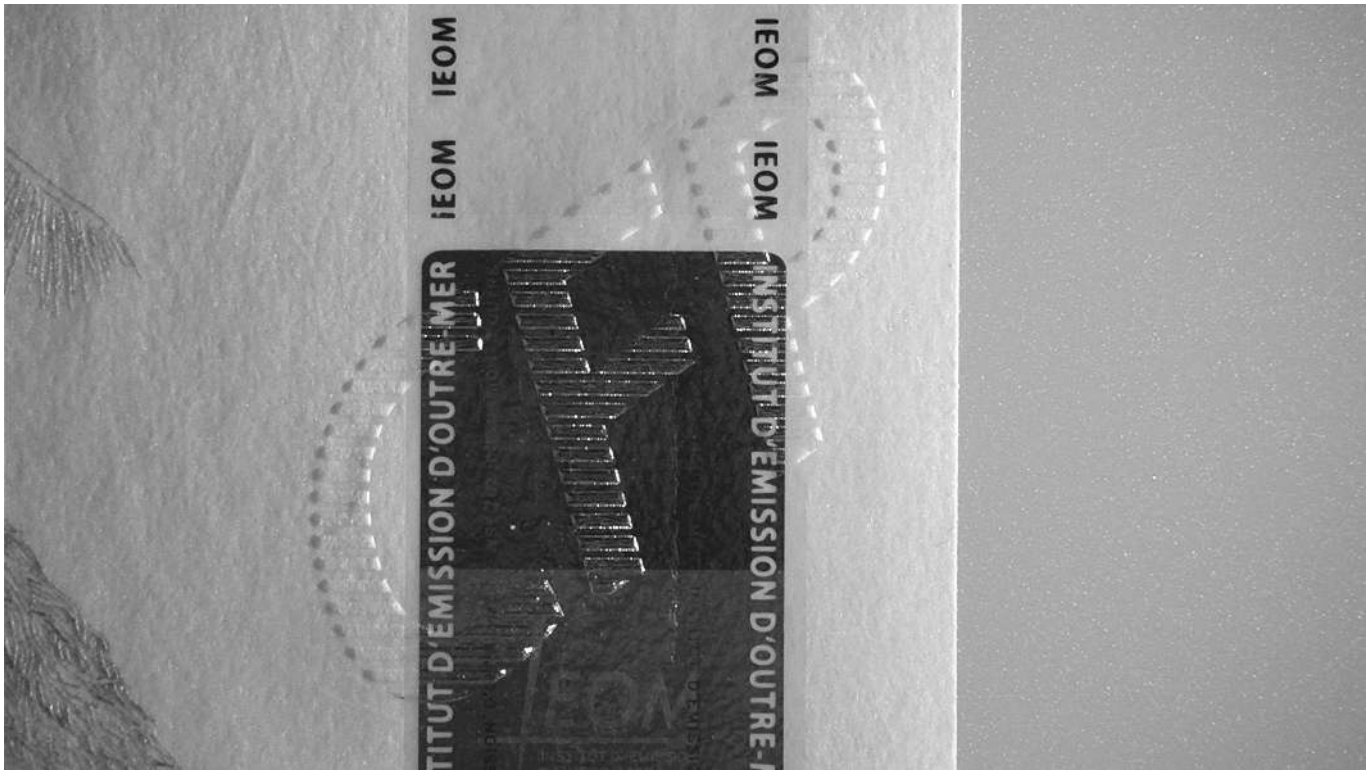
Incident white light 5x



Incident white light 19x



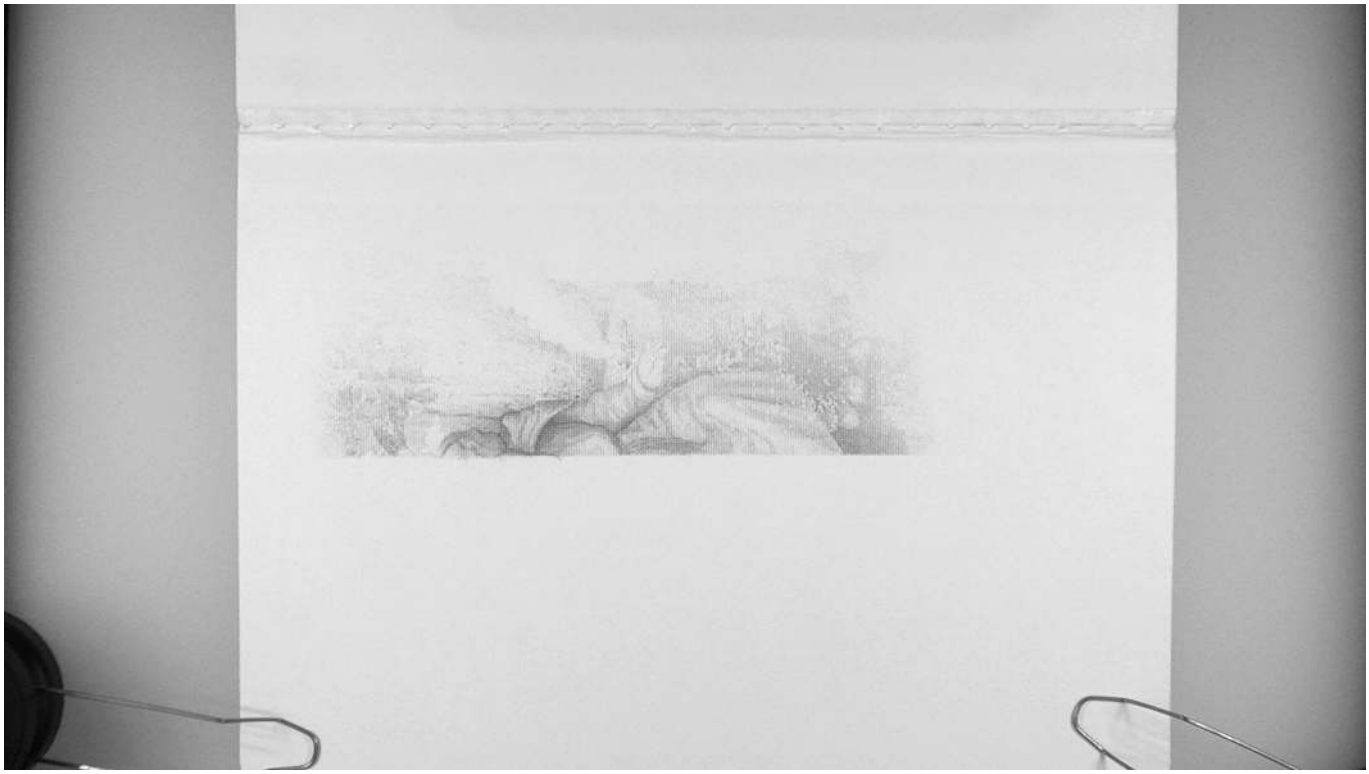
Oblique white light 6x



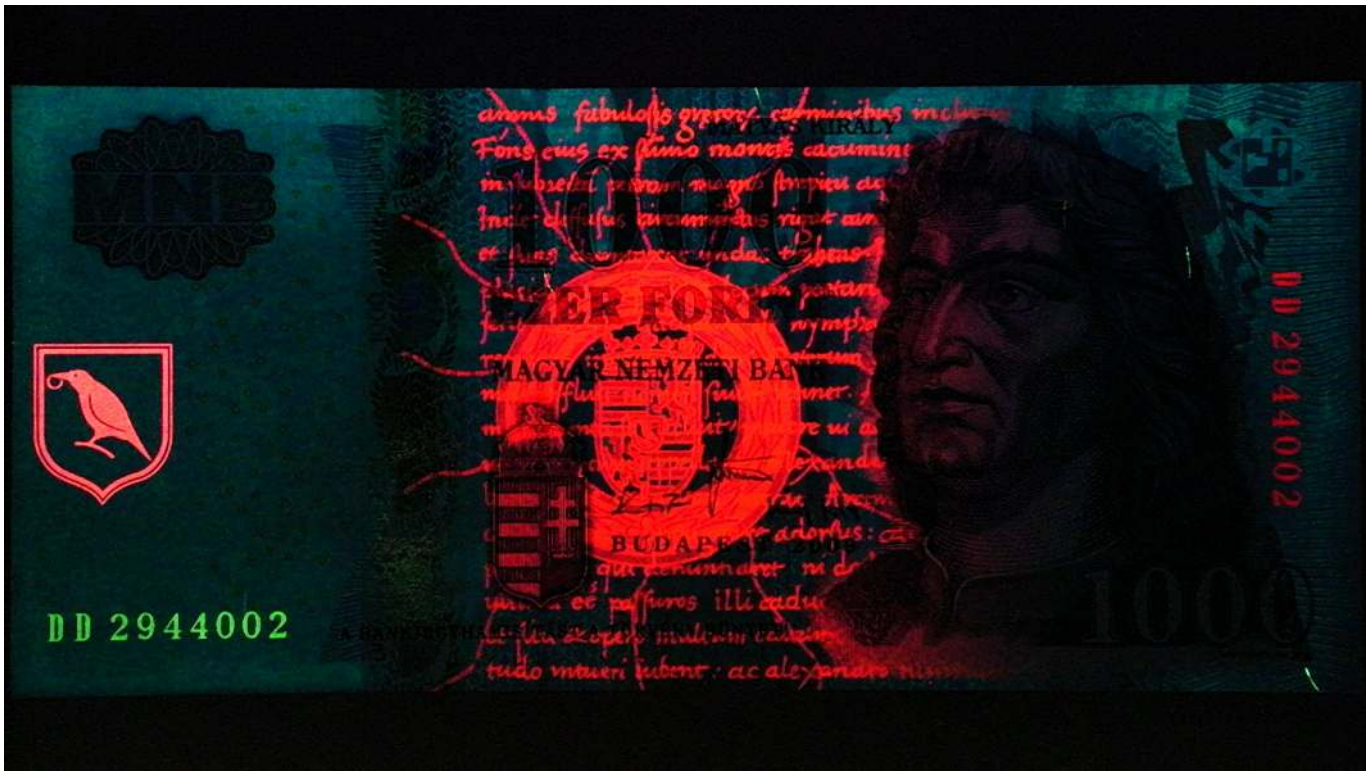
Oblique IR light 6x



Incident IR light 700 nm 1.1x



Incident IR light 870 nm 1.1x



UV light 254 nm 1.3x



UV light 365 nm 1.3x



UV light 400 nm 1.3x



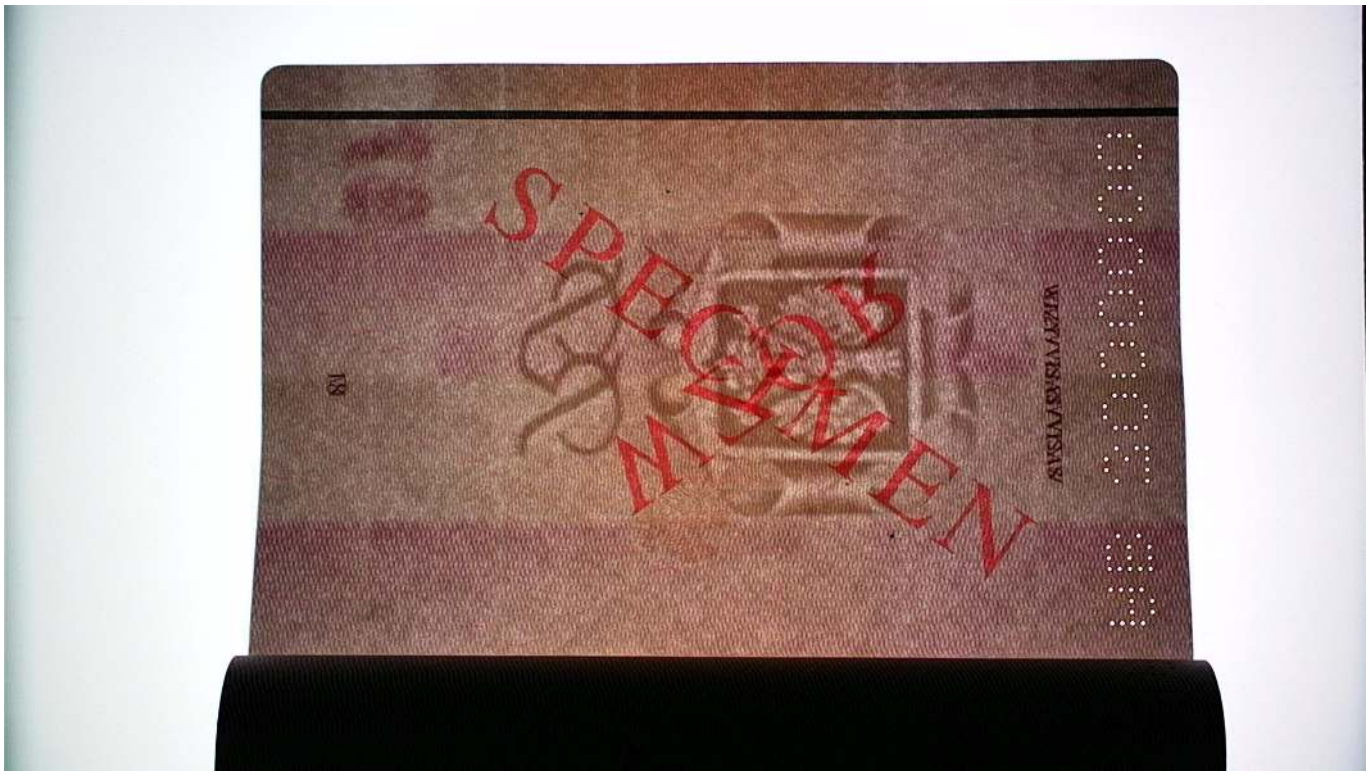
High-intensity incident azure light 1.4x



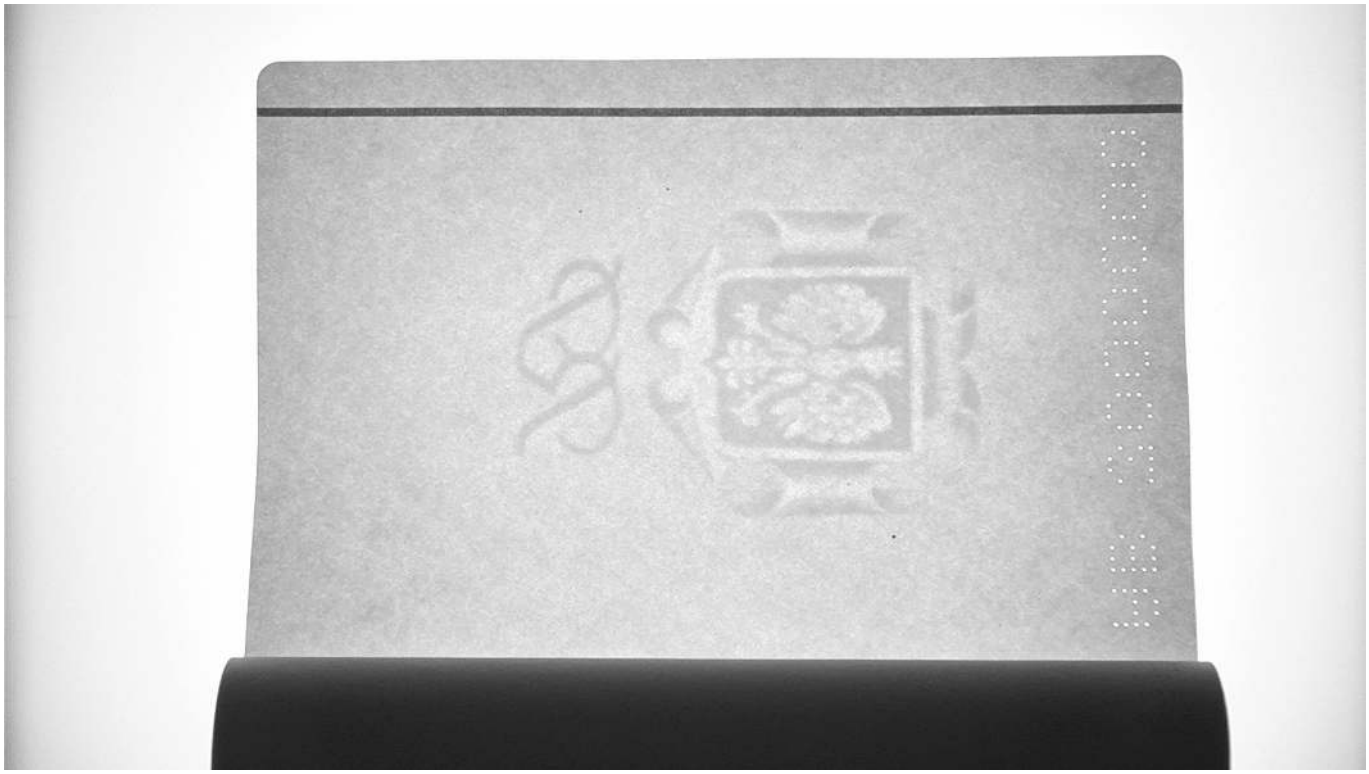
High-intensity incident green light 1.4x



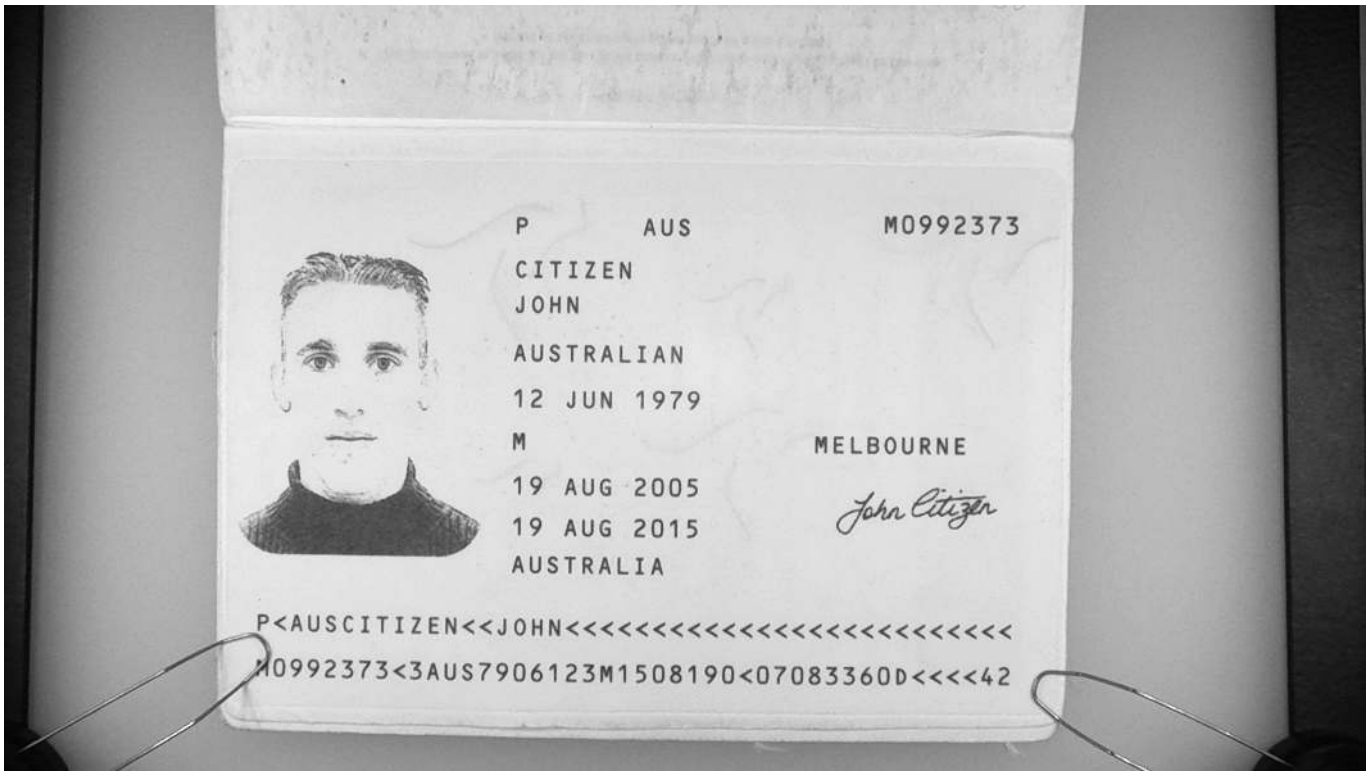
Incident white light 1.1x



Bottom white light 1.1x



Bottom IR light 1.1x



Incident IR light 870 nm 1x



Coaxial white light 1x