Spectral Luminescent Microscope Regula 5001MK



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 microscope enables to conduct the following types of expertise: dactyloscopic, ballistic, trasological, handwriting and forensic.

The microscope is constructed in metal body and intended for desktop use. It is operated with the help of the buttons of the front panel or/and Regula Forensic Studio software. The 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.

The device has a set of light sources of visible, infrared and ultraviolet spectral ranges and imaging filters used for carrying out forensic expertise. The microscope enables to capture, process and store digital images of examined objects and perform additional visual control using the binocular nozzle.

Regula 5001MK.01 is equipped with an analysis stand which enables to clamp examined objects (bullets, cartridge cases, etc.), to rotate them radially and axially, as well as in the tangential direction (when the movable pincer is taken off).

Functionality

- Manual or remote control of:
  - magnification
  - light sources
  - imaging filters
- Zooming images of examined objects on the monitor screen via USB 2.0 digital camera (3.1 MP)
- Viewing fragments of examined objects
- Capturing, processing and storing images of examined objects on the PC via Regula Forensic Studio software
- Additional visual control using the binocular nozzle with changeable 8x and 14x eyepieces
- Zooming in and out on the images of examined objects
- Examination of objects in visible, high-intensity UV or IR light

Light complexes

1. **Spectral luminescent.** The spectral luminescent light complex is used to examine objects in different spectral ranges due to the position of the light sources relative to the working surface. Light sources used:
   - 7 light sources in visible, IR and UV spectral ranges
   - 4 modes of white oblique light and 4 modes of IR oblique light intended for surface microrelief examination
2. **Ring.** The ring light complex is used to examine objects under shadowless illumination of white and IR light. Each light source has 7 operation modes:
   - ring
   - semiring (2 modes)
   - quadrant (4 modes)
3. **Bottom.** The bottom light complex is used to detect watermarks, security threads and fibers, see-through register, continuous printing and to reveal document alterations such as erasure, etching and washing-off.

Special features

- Relatively small size of the device
- Compact arrangement of light sources
- Coarse and fine focus adjustment
- Multilingual interface

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

- Analysis stand which enables to clamp examined objects for **Regula 5001MK.01**
- Regula Forensic Studio software intended for capturing, processing and storing images of examined objects
- Eyepieces:
    - 8X
    - 8X with a measuring scale
    - 14X

Functionality			
Light complexes	**Light sources, nm**		
Luminescent	incident	white	
		ultraviolet	365
		royal blue	455
		blue	470
		cyan	505
		green	530
		amber	590
		red	627
		infrared	870
			950
		high-intensity infrared	980
	oblique	4 white	
		4 infrared	870
Bottom	white		
	infrared		870
	UV bottom lighter		365
Ring	36 white		
	36 infrared		870

Lens magnification, times	**Digital channel (frame size 2048×1536)**		
	field of view, mm	resolution, ppi	magnification (for a 21-inch monitor), times
0,6	21,5×16	2 420	19,9
1	12×9	4 360	35,5
2	6×4,5	8 670	71,1
4	3×2,2	17 350	143,3
7	1,6×1,2	32 500	266,7

Lens magnification, times	**Lens magnification with the eyepiece, times**			
	8		14	
	field of view, mm	magnification, times	field of view, mm	magnification, times
0,6	39	4,8	29	8,4
1	22	8	16	14
2	11	16	8	28
4	5,5	32	4	56
7	3	56	2,1	98

Colour camera:

- Type — CMOS
- Effective pixels — 3,1 MP
- Frame size, pixels:

    - 2048×1536 (Full Frame)
    - 1920×1080 (Full HD)
    - 1280×720 (HD)

Camera filters, nm:

- bandpass — 420–1100
- IR low-pass — 700
- IR high-pass — 650
- IR high-pass — 670
- IR high-pass — 700

Maximum size of an examined object, mm — 420×300

Maximum thickness (height) of examined objects, mm — 170

Connection interface — USB 2.0

Dimensions (length × width × height), mm — 440×440×600

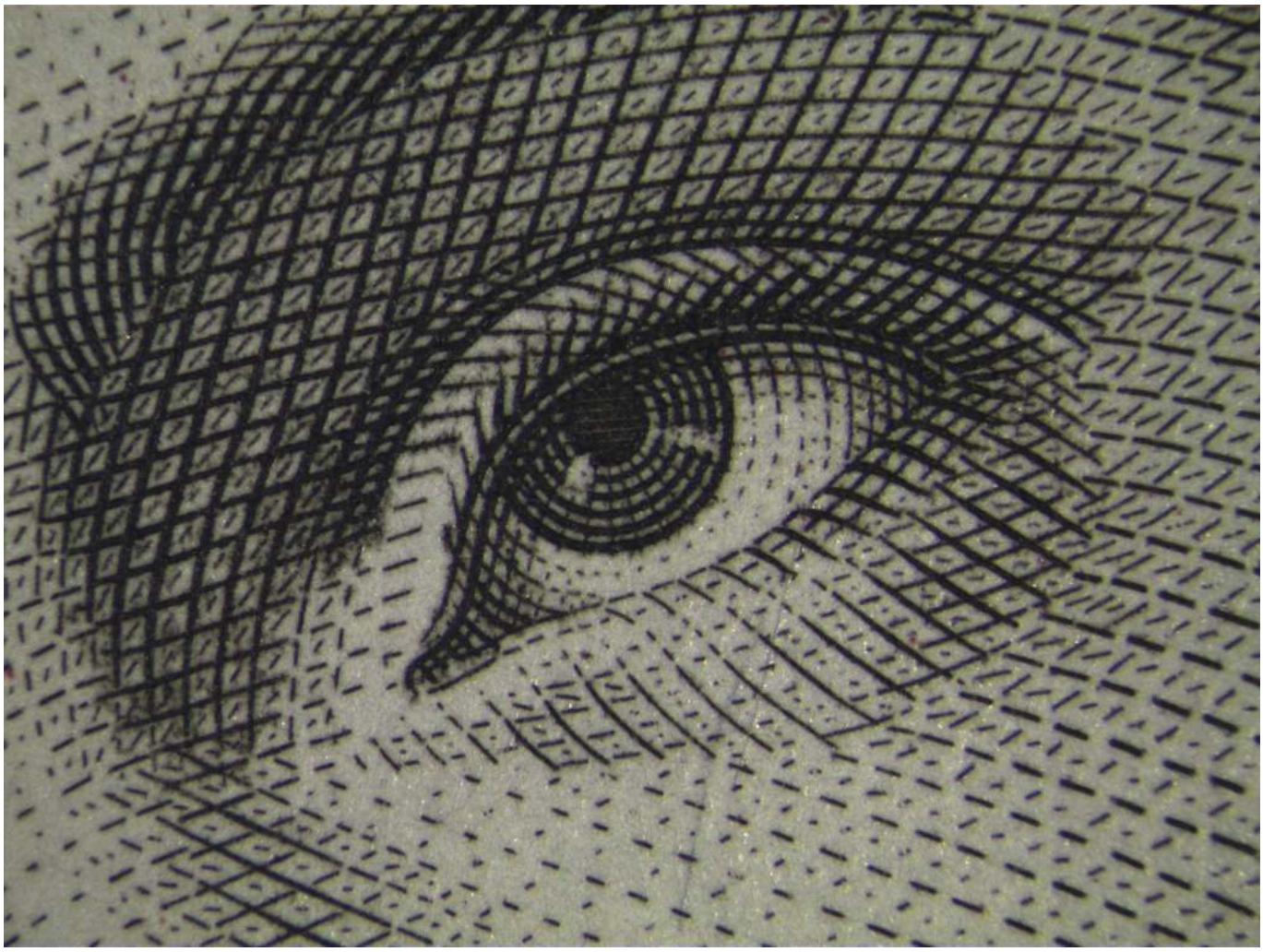
Weight, kg — 20

Power supply voltage, V — 12 ± 0,5

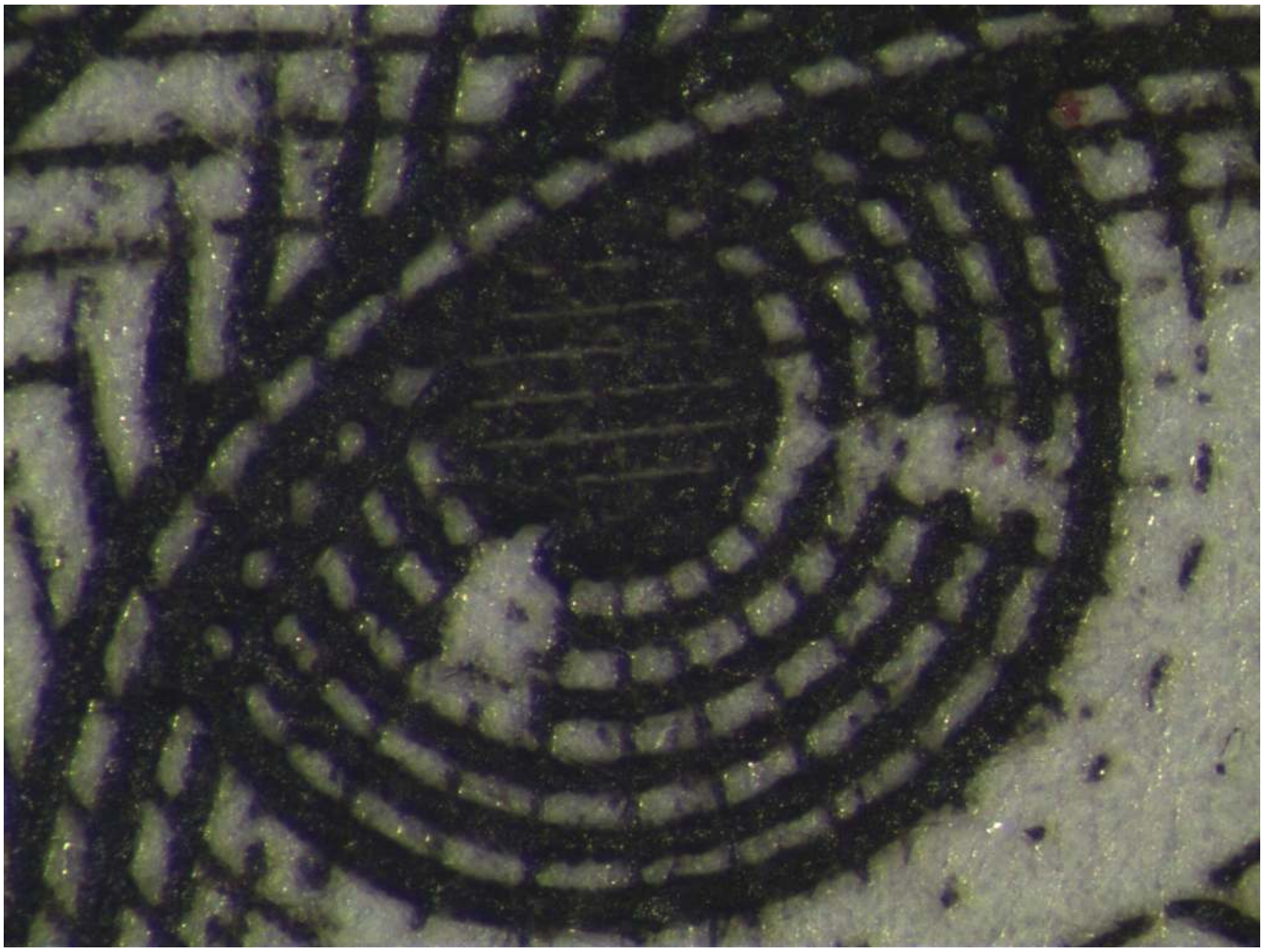
Power consumption, W — 60

PC requirements

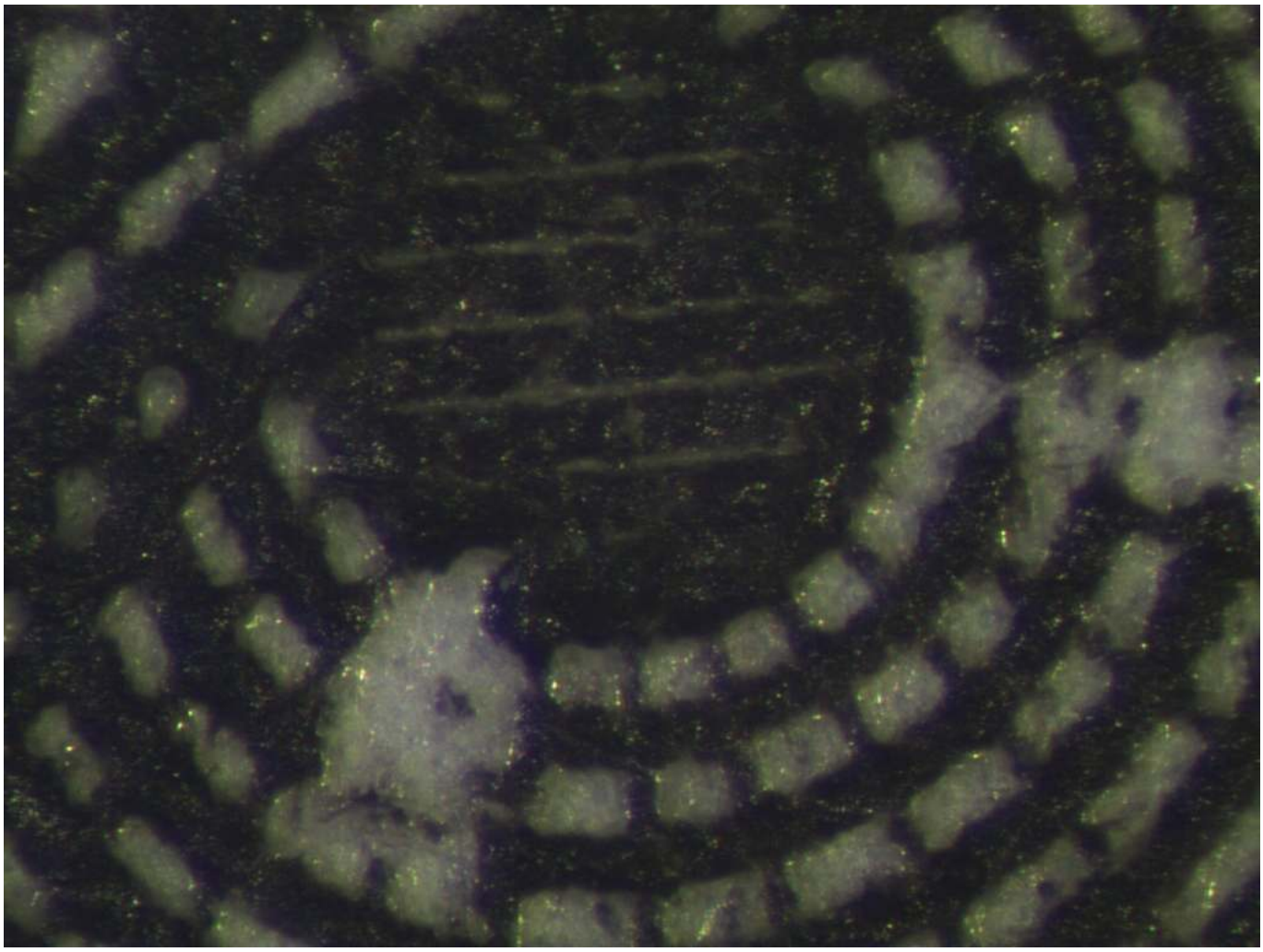
- Minimum configuration:
    - OS — Microsoft Windows 10
    - processor — Intel® Core™ i5 3.0 GHz
    - RAM, GB — 4
    - minimum free disk space, GB — 1
    - display resolution, pixels — 1600×1200
    - connection interface — USB 3.0
- Recommended configuration:
    - OS — Microsoft Windows 10
  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



Incident white light X1



Incident white light X4



Incident white light X7



Incident UV light (365 nm) X0,6



Incident UV light (365 nm) X2



Transmitted white light X1



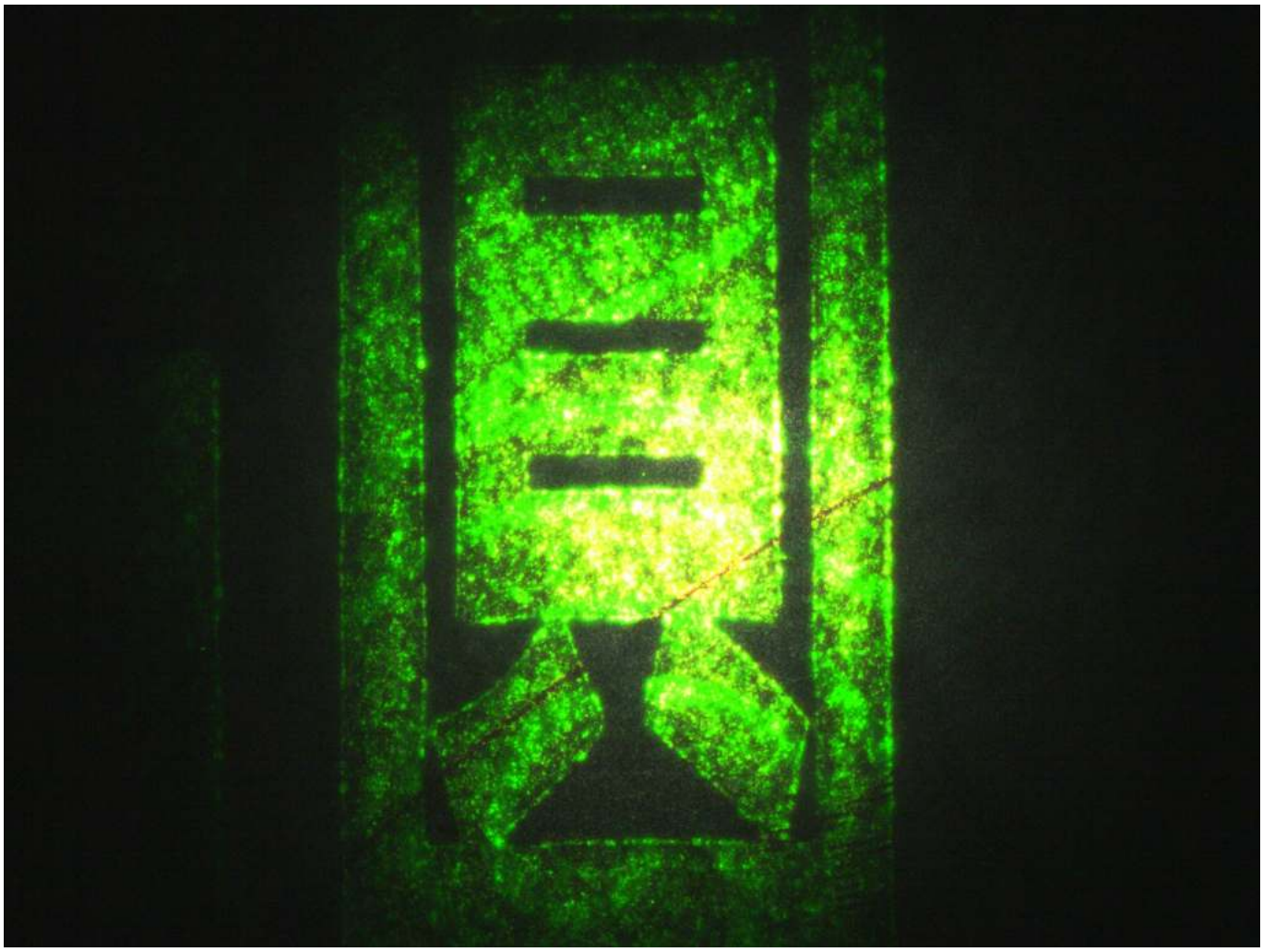
IR luminescence X1



Oblique white light X1



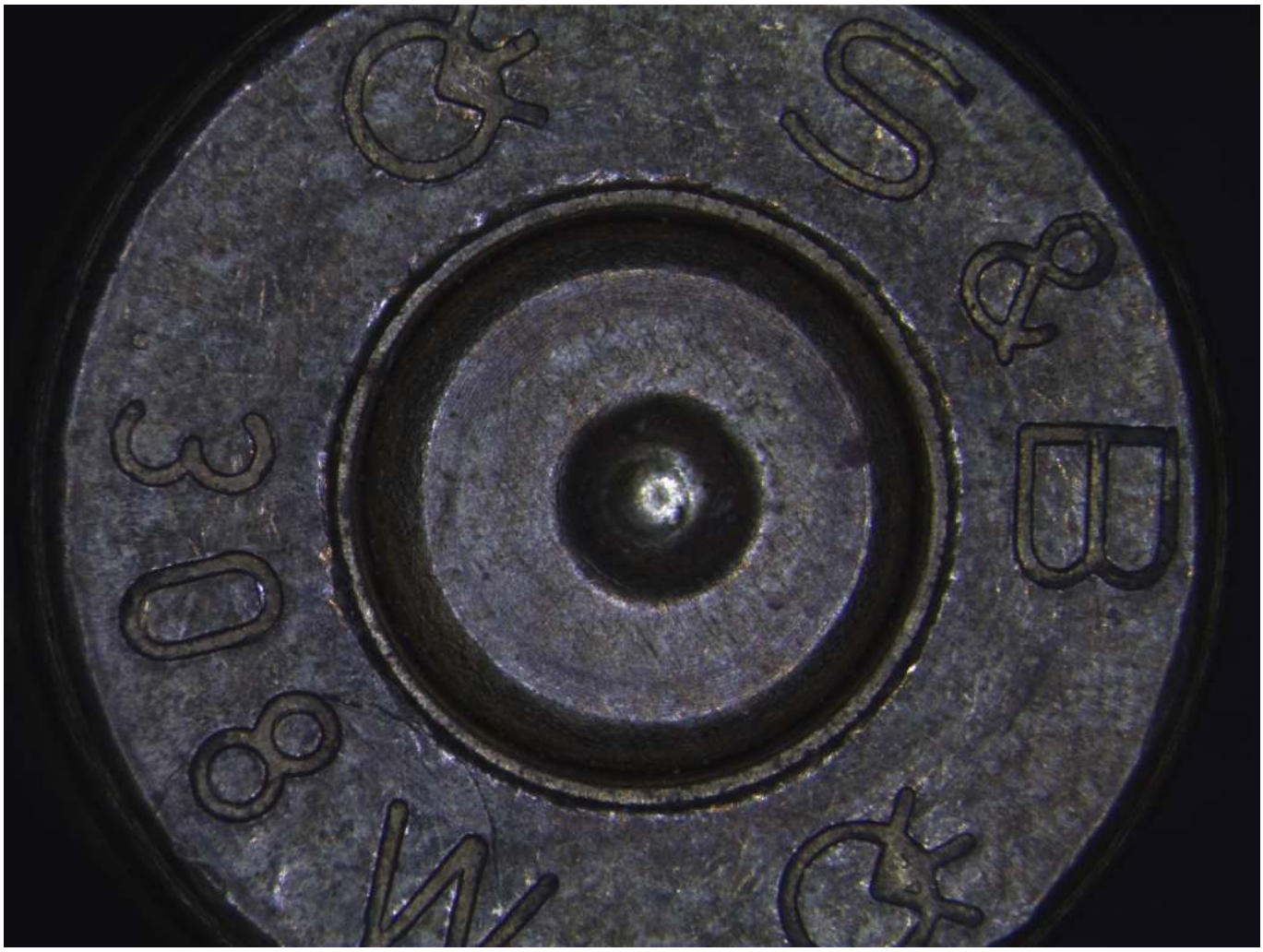
Oblique IR light X1



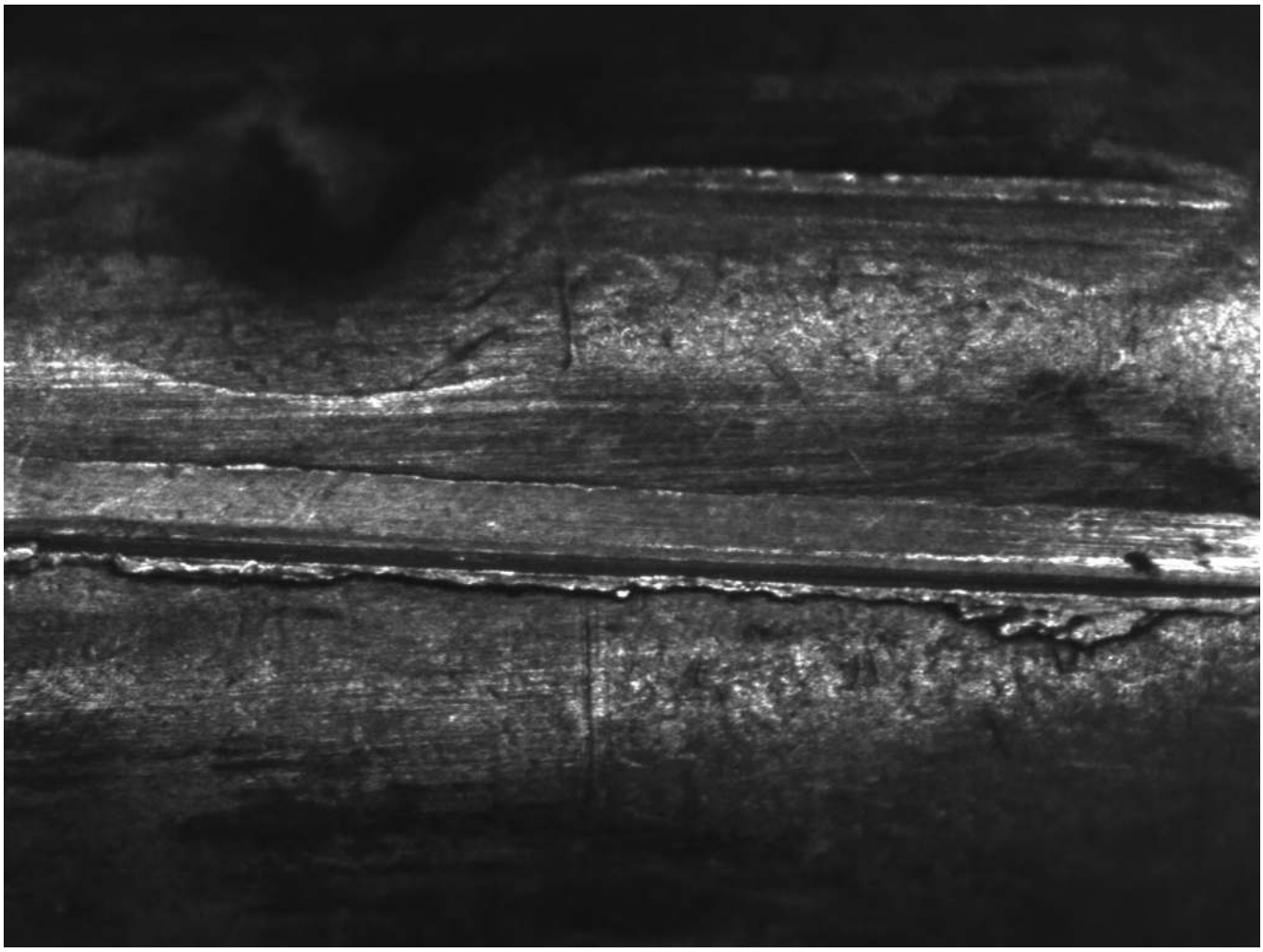
anti-Stokes luminescence X1



Incident ring white light X0,6



Incident ring white light X1



Incident semiring IR light X2