

Signature effects for banknotes



nanoDOVID® High-security technology based on nanostructures

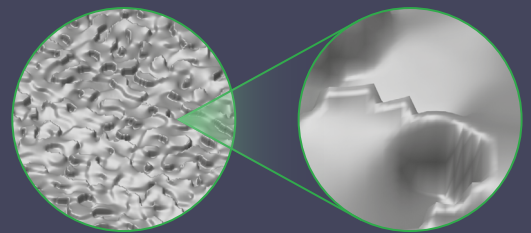
nanoDOVID® uses nano-engineered optical structures calculated point by point with advanced mathematical algorithms, providing the highest level of anti-counterfeiting protection for banknotes.

Patented technology, proven in the market.

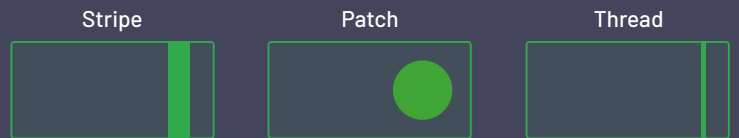
Authentication:

overt, covert, forensic
and digital using a smartphone.

nanoDOVID® can be applied in various formats, such as stripe, patch and thread.



CGH
Aperiodic structure



EFFECTS CATEGORIZATION	Category	Level	Effects	
	Higher	1	White Bas-relief	
	Deeper		Swap	
			Morph Magnify Keyhole	
	Hidden	2	Ghost	
	Smaller	3	Nanograf	
Robotic	4	Robotic Ghost		

Banknotes signature effects description

Higher

White Bas-relief

- 3D object as a sculpture
- Rising above the plane
- No haptic response (feels flat)
- Achromatic (colorless)
- Visible under all lighting conditions



Deeper

Swap

- Moving wireframe (3D object outline) in counterintuitive movement
- Tilt the banknote around the vertical axis to observe objects moving up and down, and tilt it around the horizontal axis to observe objects moving left and right
- This movement, counter-intuitive for the human brain, creates a unique effect



single parallax



Left tilt



Right tilt



Down tilt



Up tilt

Morph

- Morphing wireframe (3D object outline)
- Object animates or changes shape when the banknote is tilted vertically
- Hovering under the plane
- Tilt the banknote around the vertical axis to observe the 3D object
- Tilt the banknote around the horizontal axis to observe the object morphing



Left tilt



Right tilt



Down tilt



Up tilt

Magnify

- Magnified wireframe (3D object outline)
- Letters, numbers, and shapes enlarge under the magnifying area
- Hovering under the plane
- Tilt the banknote in all directions to observe the magnified object



Keyhole

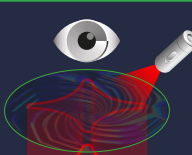
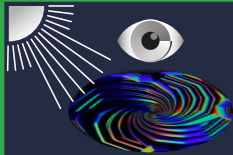
- Wireframe (3D object outline) larger than the display area
- Hovering below the plane
- Tilt the banknote in all directions to observe the whole object



Hidden

Ghost

- Objects visible under red light
- 3D objects, letters, or symbols
- Hovering below the plane



Smaller

Nanograf

- Grayscale image at the nano or micro scale
- Bitmap structure with a resolution of 254,000 DPI
- Visible under a magnifying lens - contains finer details only visible with a forensic microscope



100 μm



50 μm



100 μm



20 μm

Robotic

Robotic Ghost

- Machine-readable effect
- Recognition of hidden 3D object
- Authenticated by smartphone using the IQ Check application

