

Detection and Avoidance of Counterfeit Electronic Parts - Further Implementation

March, 27, 2014

Washington D.C.



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**UTILIZATION OF A PUF TO COMBINE
PRODUCT AUTHENTICATION AND
TRACK & TRACE**

ADVANCED TRACK & TRACE

ADVANCED TRACK & TRACE is the leader in the Digital Security market applied to
Brand Protection and Secure Traceability

KEY FIGURES

- Subsidiary of LAMY Group (Energies & Technologies) founded in 1830
- Headquarters located in Rueil-Malmaison (92), France
- 1 200 employees
- 970 M€ turnover

AWARDED « TECHNOLOGY PIONEER » by The World Economic Forum

BusinessWeek TIME

WORLD ECONOMIC FORUM



Davos
Technology
Pioneers

“ ... for its involvement in the development of life-changing technology innovation, having the potential for long-term impact on business and society. In addition, demonstrate a visionary leadership and show all the signs of being a long-standing market leader.”

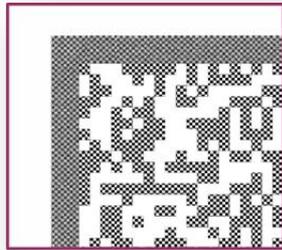
GLOBAL PRESENCE

- Presence in Switzerland, California , Hong Kong.
- Partners : Japan, Mexico, Brazil.

OPTICAL PHYSICAL UNCLONABLE FUNCTION

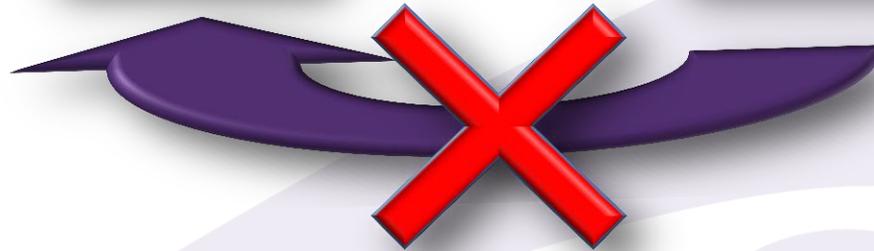
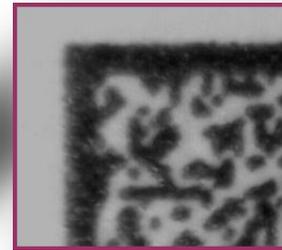
The marking process is designed to randomly downgrade the reproduction of the Seal Vector®.

DIGITAL SOURCE
QUALITY 100%



Legitimate
Print

ORIGINAL PRINT
QUALITY 70%



Trying to recreate the original image is gambling.

The Seal Vector® embeds an individual encrypted ID

The Seal Vector® can be either be printed or laser etched.

When printed, regular ink is used :

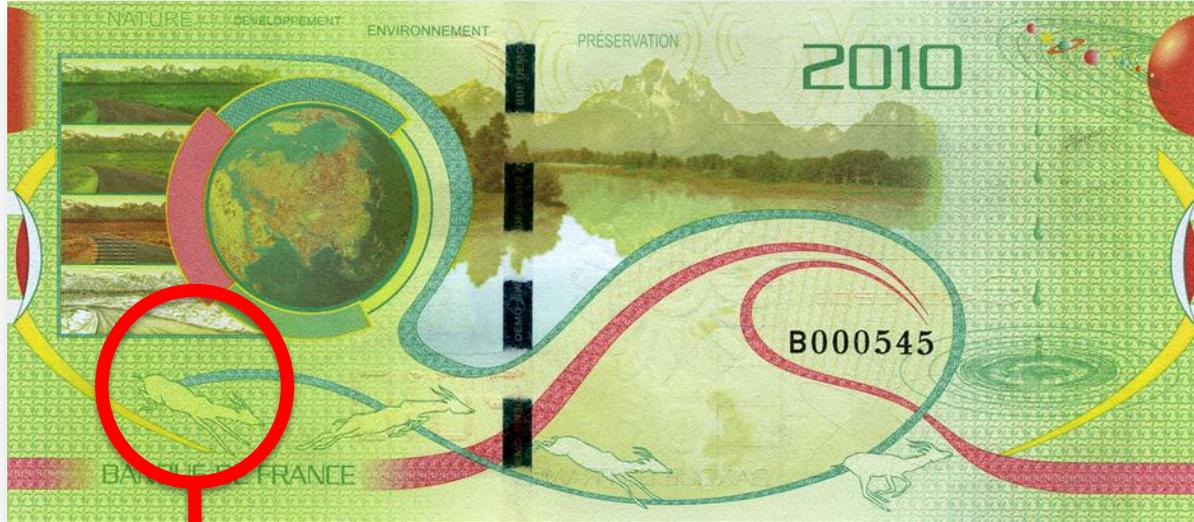
- Safe and environmentally friendly
- No risk of theft or diversion
- No raw inventory
- No expiration date

Existing marking equipment can be used.

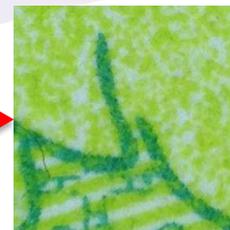
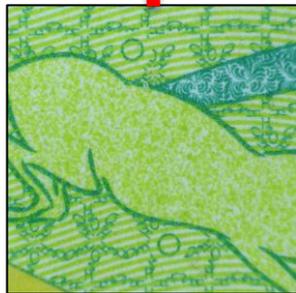
Compatible with other existing marking technologies.

SEAL VECTOR® ON BANK NOTES

DOCUMENT SECURITY



The antelope is the Seal Vector®



FIELD AUTHENTICATION

Vector Mobile™ APP.

Smartphones, USB Cameras, Flatbed Scanners

- Standard, relatively inexpensive off-the-shelf devices
- Validates a Seal Vector® in a matter of seconds
- Password protected
- Allows early, in the field authentication and traceability

NO ENCRYPTION KEY IS STORED LOCALLY

**THERE IS NO RISK TO COMPROMISE THE SYSTEM
WITH A LOST OR STOLEN DEVICE**



EXAMPLES



Boxes



Blister packs



Leaflets



Pills



Labels



Bank Notes



Documents



Screw caps



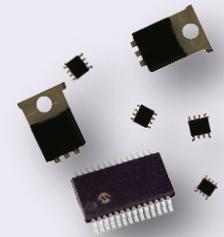
Bottles



Caps



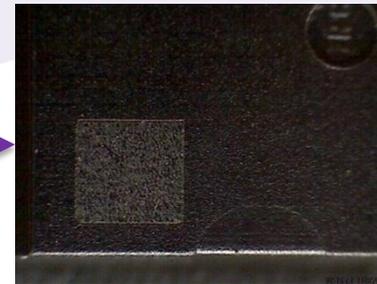
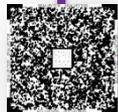
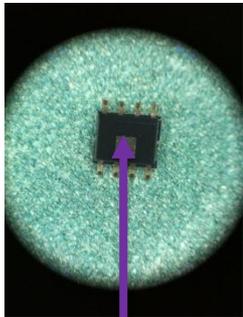
Spare Parts



ICs

2 year selection process to evaluate 25 different technologies and processes:

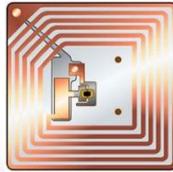
- Tested on various packaging
- Minimum size 1x1 mm
- Each code can be unique
- Resistance to various counterfeiting and tampering technologies
- No impact on the component specifications
- No impact on the production line – etching at marking station
- Safe and environmentally friendly
- Compatible with other authenticating technologies
- Reliability tests limited to JEDEC HTSL and MIL-STD-883 1009



COMBINES IDENTIFICATION & AUTHENTICATION

Digital Value on Physical Support
License Plate

Physical or Optical Function
Fingerprint

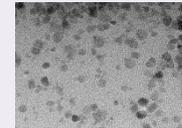
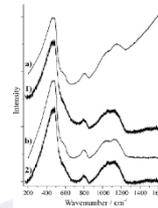
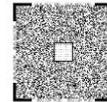


X41

H7Y W5K



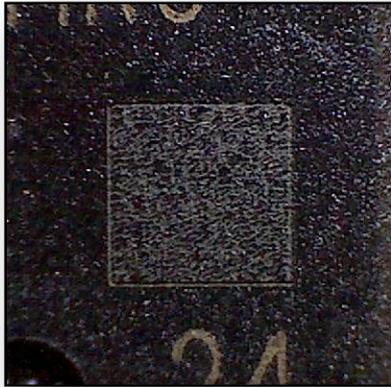
CIP:7612345678901
Lot:123456818
Exp:08.2013
Fab:02.2013
UCN:12345678901234567890



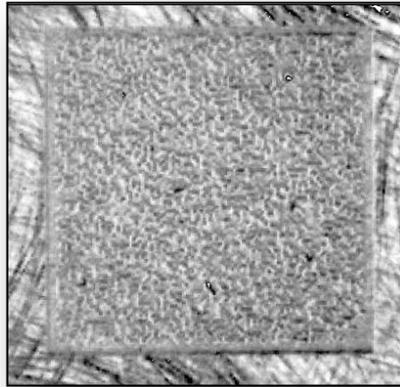
Authenticating Vector

- Encrypted Digital Value
- Expressed by « Unclonable Physical Bits »
- No Specific Consumable Involved

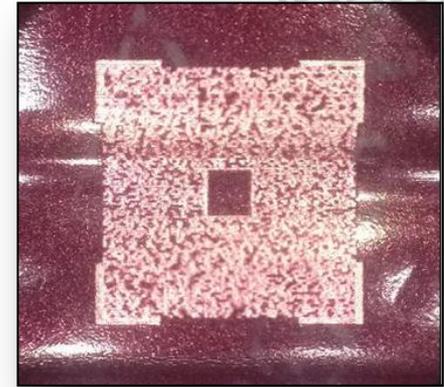
SUBSTRATE EXAMPLES



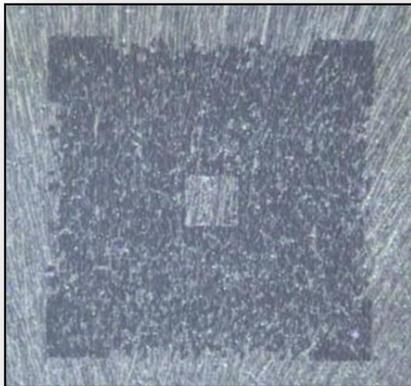
RESINE
INTEGRATED CIRCUIT



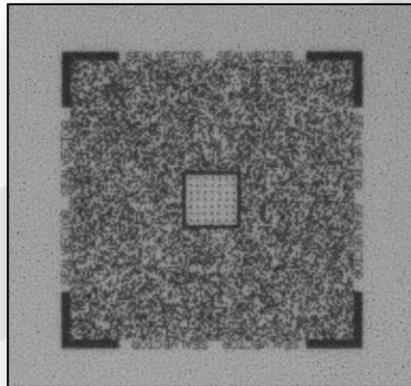
STEEL
BEARING



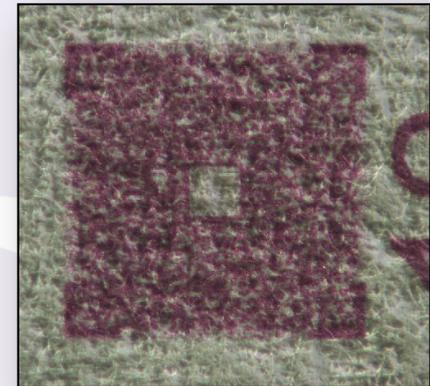
METAL
BOTTLE SCREW CAP



ABS
SEAL



CARDBOARD
PERFUME BOX

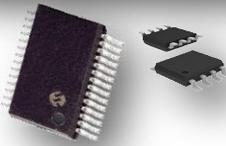


VELLUM
BANK NOTE

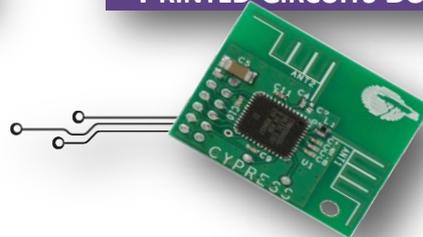
FULL AUTHENTICATION AND TRACEABILITY

With the same technology, every component can be tracked and authenticated.

INTEGRATED CIRCUITS



PRINTED CIRCUITS BOARDS



ELECTRICAL & MECHANICAL COMPONENTS



ENCLOSURES



CABLES & HARNESSES



PACKAGING



DOCUMENTS



MARKING STATIONS



The Seal Vector

- can be applied on the production line,
- at existing marking stations,
- with existing equipment.

This guaranties the product leaving the manufacturing facility is genuine.



PROTECTING THE US FORCES

BENEFITS AND ADVANTAGES

SECURITY

- Data is encrypted and scrambled.
- No risk to “loose” a bottle of taggant.
- Not replicable, high robustness.

SAFETY

- No chemical, environmental friendly and safe.

IMPLEMENTATION

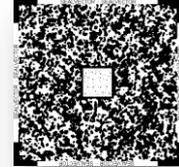
- Easy to integrate on production line.
- Easy to interface with existing ERP.

AUTHENTICATION

- Provides forensic evidence.
- Easy and immediate authentication in the field.

ECONOMICAL

- No raw material.
- No inventory.
- No need for a “safe” room.



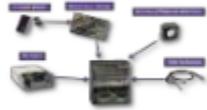
FULL TRACEABILITY

- Authenticates the components, sub-assemblies, top level assemblies.
- Tracks a product from cradle to grave.

ROBUSTNESS

- Billions of products already protected worldwide.
- Tested by the National Laboratories, National Banks, and Private Laboratories.

IN CONCLUSION

- ✓ Combine authentication + track & trace 
- ✓ Authorize full product genealogy and pedigree 
- ✓ Have a minimal impact on the production and supply chain
- ✓ Be competitive and easy to implement 
- ✓ Respond in real time 



WE SECURE YOUR BRAND, YOUR PROCESS, YOUR PRODUCTS



THANK YOU FOR YOUR ATTENTION

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