

INFRAREDESIGN

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Pira International,
Ltd., London

Security Printing & Alternative Solutions
in Central & Eastern Europe and Russia
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INFRADESIGN is invention unique in the world, patent awarded with over 30 prizes from US across Europe (London, Geneva, Moscow) to Taiwan.

INFRADESIGN enables:

- embedding of the hidden image and information in the carrier image visible to the human eye
- creation of invisible security elements on any printed matter
- control of visible and invisible information
- designing of double image in the same picture: one visible in Visual light (400-700 nm) and other independent hidden image visible in near infrared light (700-1000 nm)
- design of hidden graphics with the unlimited number of colors and hues
- design of double image, double portrait, double text, security code

Why INFRADESIGN?

- superior brand protection at no extra costs
- simple implementation
- new marketing
- new product positioning
- art and design improvement with double information

INFRADESIGN - benefits for security printers:

- simple implementation by using standard CMYK printing inks and traditional printing methods and machines - revolutionary in security printing
- without any extra procedures, printing phases and costs with standard process CMYK printing inks or spot colors (Even the pressman himself doesn't need to know that print contains the hidden infrared message.)
- printing with all printing techniques (digital printing, dry toner, inkjet printing, silk printing, offset printing, flexo printing, intaglio)
- unlimited sizes and formats as opposed to other security techniques
- printing on various materials: paper, canvas, textile, leather, ceramic, glass, metal, plastic
- cannot be scanned or copied - by transition through RGB the IRD message is lost

INFRADESIGN - benefits for manufacturers:

- creation of superior brand protection with easy identification of security

INFRADESIGN je izum jedinstven u svijetu, omogućava upravljanje vidljivo - nevidljivim informacijama, kreiranje dvostruke slike i vrhunsku zaštitu od krivotvorenja. Nagrađen je s više od 30 nagrada od SAD-a preko Europe (London, Ženeva, Moskva) do Tajvana.

INFRADESIGN omogućava:

- ugradnja skrivene slike i informacije u sliku nosioca koja je vidljiva ljudskom oku
- dizajniranje nevidljivih sigurnosnih elemenata na svim tiskanim materijalima
- upravljanje vidljivim / nevidljivim informacijama
- kreiranje dvostruke slike u jednoj slici: jedna vidljiva u dnevnom svjetlu (400-700 nm) i druga potpuno nezavisna skrivena slika vidljiva u bliskom infracrvenom dijelu spektra (700-1000 nm)
- dizajniranje skrivenih grafika za infracrveno područje u neograničenom rasponu boja i tonova
- projektiranje dvostruke slike, dvostrukog portreta, dvostrukog teksta, sigurnosnog barkoda

Zašto **INFRADESIGN**?

- vrhunska zaštita branda bez dodatnih troškova u realizaciji,
- jednostavnost primjene koju omogućava tisak standardnim procesnim bojama,
- novi pristup marketingu,
- novo pozicioniranje proizvoda,
- oplemenjivanje dizajna dvostrukom informacijom.

INFRADESIGN - prednosti u sigurnosnom tisku:

- jednostavna primjena korištenjem standardnih procesnih boja CMYK, standardnih metoda i tehnika tiska – revolucionarno za zaštitni tisak
- izvodi se svim tehnikama tiska: digitalno, suhi toner, inkjet, sitotisak, offset, novinska rotacija, flexo, intaglio.
- bez dodatnih procedura i troškova, standardnim procesnim bojama CMYK ili spot bojama. Sam tiskar ne treba znati da se u otisku krije infracrvena poruka.
- u neograničenim formatima za razliku od ostalih sigurnosnih tehnika
- na različitim tiskanim materijalima – papir, tekstil, koža, platno, keramika, staklo, metal, plastika
- ne može se kopirati – skenirati, pa time niti reproducirati. Prolaskom kroz RGB sustav gubi se IRD informacija.

INFRADESIGN - korist za proizvođače:

- simple implementation in all existing designing solutions, improvement of design with double information
- protection of wide range of products: documents, securities, books, packaging, as well as textile, leather fine arts, double image
- individualization by edition, time and place
- implementation in barcodes - INFRAREDESIGN colored barcode and colored 2D barcode
- barcode to become protection - by scanning or coping IRD message is lost, product is rejected by the barcode reader

INFRAREDESIGN monitoring and quality control:

- simple and quick validation with our ZRGB camera with two screens: Visual light and infrared
- simultaneously two screens, one that validates human-eye view (standard colour cam) and the other which validate INFRAREDESIGN IR view
- simple and quick validation with any camera with infrared source (video camera night view, security cameras) in total darkness

Patent protected: EP2165844, P20080466A, P20100201A



Carrier image (400-700 nm)



Hidden image (1000 nm)

- vrhunsku zaštitu svih proizvoda i brandova sa mogućnosti jednostavne provjere, jednostavno se identificira
- jednostavna ugradnja u sva postojeća dizajnerska rješenja, oplemenjivanje dizajna dvostrukom informacijom - dodana vrijednost
- zaštita širokog spektra proizvoda: sve vrste ambalaže, dokumenata, diplome, indeksi, knjige, novine, u informacijskoj tehnologiji, industriji tekstila, kože, kao i na umjetničkim slikama. Prvi realizirani primjeri bili su na ambalaži lijekova.
- individualizacija po izdanju, po vremenu, po mjestu nastanka
- primjena na barkodovima - **INFRAREDESIGN** šareni barkod i šareni 2D barkod
- barkod postaje zaštita – skeniranjem ili kopiranjem gubi se IRD informacija, krivotvoreni proizvod će strojno putem kamere ili čitača biti odbijen kao krivotvorina.

INFRAREDESIGN praćenje i kontrola kvalitete:

- provjerava se brzo i jednostavno našom ZRGB kamerom sa dva simultana monitora: za dnevno svjetlo i infracrveno područje
- jednostavna i brza provjera: kamere, fotoaparati i mobiteli s opcijom night vision - infracrvenim izvorom, IR kamere, sigurnosne kamere



Carrier image (400-700 nm)



Hidden image (1000 nm)

AWARDS for INFRAREDESIGN :

- (2) Gold Medal and Special Award for best Croatian exhibitors at the 33rd Croatian Salon of Innovations INOVA33 Čakovec, 2008.
- Gold medal at the 12th International Salon of Industrial Property "ARHIMED", Moscow, 2009
- (2) Grand Prix of Geneva and Gold Medal at the 37th Salon of Inventions, Innovations and New Products in Switzerland, Geneva, Switzerland 2009
- * First Prize in the category of "Creative and Innovative Project or Program of Creative Industry," Ivana Žiljak, Zagreb, 2009
- * (2) Gold Medal for Invention and Global Award for Innovation, GWIIN, Cardiff, Wales, 2009
- * (2) Special award for creative innovation from Taiwan Invention Association and Silver Medal, 2009 Taipei International Invention Show & Technomart, Taipei, Taiwan, 2009
- * (2) Double Gold and Silver Medal at the 9th British International Innovation Show, London, 2009.
- * Special award for Innovation, European Exhibition of Creativity and Innovation, Euro Invent, IASI Romania, London, 2009
- * IFIA award for best innovative invention, Genius Europe International Invention Fair, Budapest, 2009
- * (2) Gold medal ARCA and FIRI Award for Innovation, 7th International Fair Inventions, New Ideas, Products and Technologies (ARCA 2009), Zagreb, Croatia, 2009
- * Special Award for Best Innovation, "Infraredesign", The First Inventors and Researchers in L.R. Iran, ARCA 2009
- * Bronze Medal for Invention, 1st International Exhibition of Inventions, Celje, Slovenia, 2009
- * Gold Medal for Innovation Infraredesign, Romanian Inventors Forum, Euroinvent, Inova Zagreb, 2009
- * Gold Medal for Innovation, International Trade Fair "Ideas-Inventions-New Products", IENA 2009, Nurnberg, 2009
- * Gold Medal, the Croatian Association of Innovation, 34th Croatian Salon of Innovations, Inova 34, Zagreb 2009
- * Annual Award "Nikola Tesla" for the best Croatian innovator, Croatian Association of Innovators, Inova 34, Zagreb 2009
- * (2) Kuala Lumpur, MTE - Malaysia Technology Expo, the Best Invention, Gold Medal & Malaysian Association of Research Scientists, 2010
- * Association of Polish Inventors, Warsaw Show, MTE 2010
- * (2) INFRAREDESIGN: Gold Medal & GRAND PRIZE, Euro Invent, European Exhibition of Creativity and Innovation, IASI Romania, 2010
- * (2) Gold Medal & GRAND PRIX first runner-up with a cash prize, INPEX2010, Invention & New Product Exposition, Pittsburgh, PA, USA
- City of Zagreb Award 2010.
- Best Croatian Innovation, Croatian Association of Innovators 35. INOVA
- DIAMOND AWARD & GOLD MEDAL The 10th British Invention Show & Awards, British Innovation & Technology Show, 13-16 October 2010, London, UK

INFRADESIGN® - Hidden image



One image (Ruder Boskovic) visible in Visual light (400-700 nm) and the other independent hidden image (Nikola Tesla) visible in near infrared light (700-1000 nm)



Carrier image (400-700 nm)

Hidden image (1000 nm)

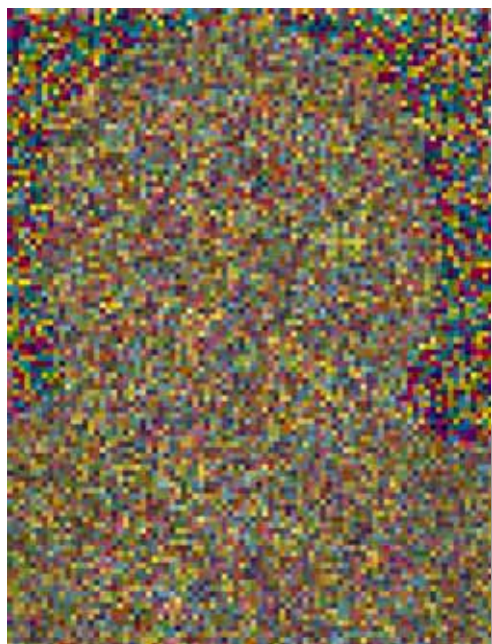
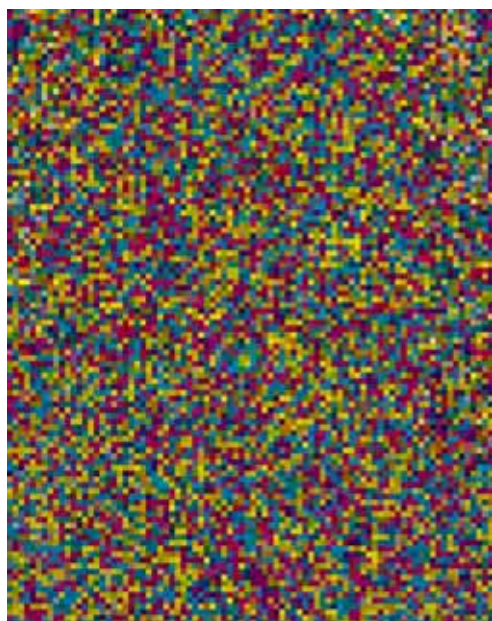


Carrier image (400-700 nm)



Hidden image (1000 nm)



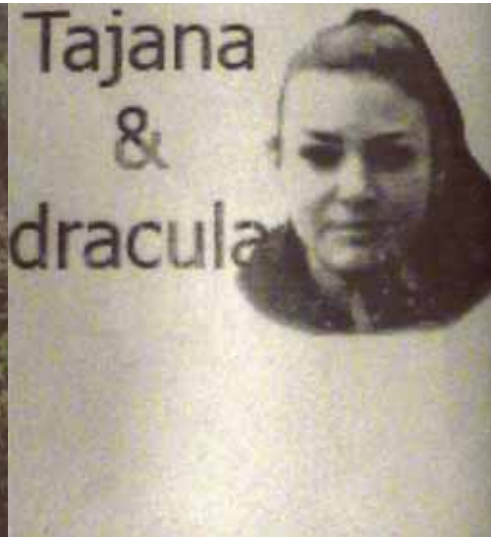


Carrier algorithm RN2 image (400-700 nm)

Hidden image (1000 nm)



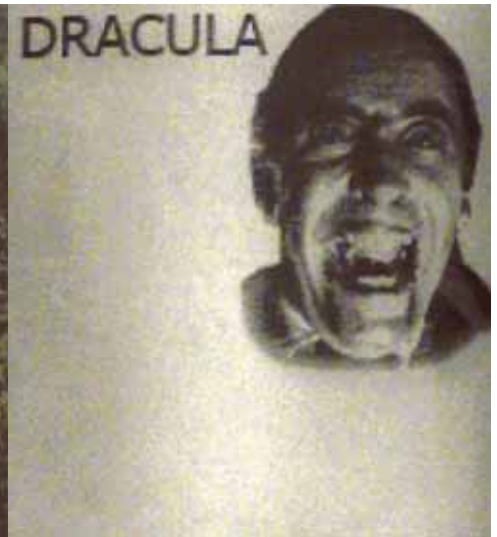
Carrier image (400-700 nm)



Hidden image (1000 nm)

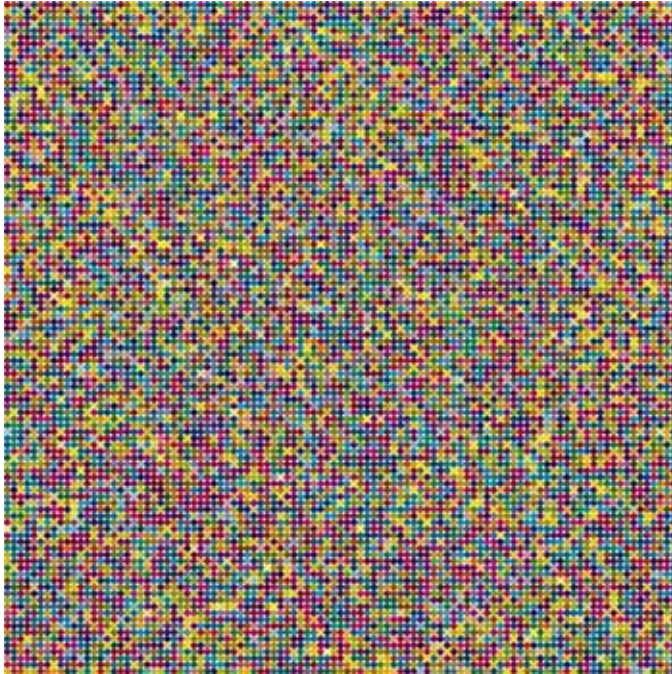


Carrier image (400-700 nm)

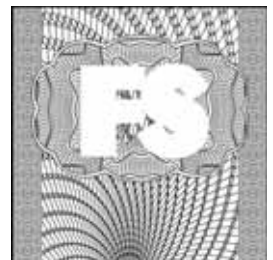


Hidden image (1000 nm)

INFRADESIGN® - Secured text for branding, documents, securities



Carrier algorithm
graphic RN1 (400-700 nm)



Hidden
information (1000 nm)

INFRAREDART® - Fine Arts and security (oil paintings)



Carrier picture (400-700 nm)

Hidden picture (1000 nm)

INFRAREDART

Nada Žiljak

Academic Painter (akademski slikar)



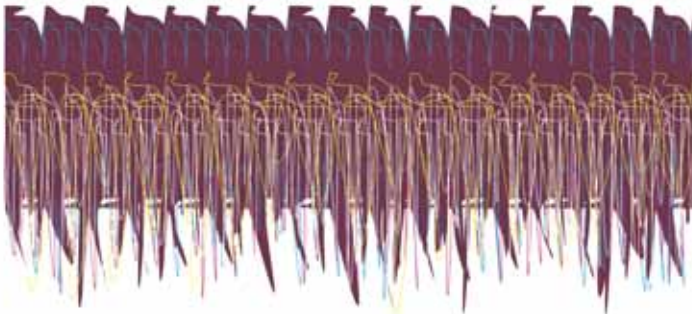
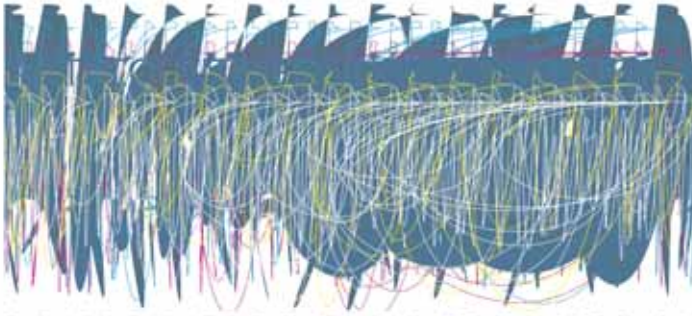
Hidden picture (1000 nm)



Carrier picture (400-700 nm)

INFRADESIGN®

Double text
for documents,
securities
(vignettes)



Carrier algorithm V
graphics (400-700 nm)

ANTI-COUNTERFEITING TECHNOLOGY
THIRUVANANTHAPURAM
KERALA STATE INDIA

SECURITY GRAPHIC

IR SECURITY IR

SECURITY GRAPHICS

IR GRAPHICS

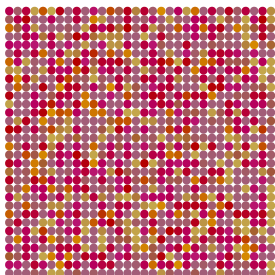
IR SEPARATION

IR GRAPHICS

ANTI-COUNTERFEITING TECHNOLOGY
THIRUVANANTHAPURAM
KERALA STATE INDIA

Hidden graphics
(1000 nm)

INFRADESIGN® - 2D color barcode readable to all 2D barcode readers (honeywell 2d, datalogic, motorola)



Carrier algorithm C2 graphic (400-700 nm)



Hidden information (1000 nm)

INFRADESIGN® - color barcode



INFRADESIGN® - Textile products complete protection of material (silk)



INFRADESIGN® printed in newspapers



VJESNIK - edition August 27, 2010 - page 32, Physicists and Albert Einstein - NIR model by Fotosoft (izdanje 27.8.2010. - 32. stranica, Fizičari i Albert Einstein - Fotosoft NIR model)



VJESNIK - edition August 19, 2010 - page 32 (izdanje 19.8.2010. - 32. stranica)

INFRADESIGN® ZRGB double camera



Security graphics with hidden informations in Flexography - Polypropylene





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