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## THAT'S THE TICKET!

*Your Ticket to Not Getting Scammed*

*April 13, 2016*

Nearly 5 million Americans purchase counterfeit tickets each year. And with the world's top 5 sports leagues attracting 158 million attendees from 2014 through 2015, counterfeiters have capitalized on the opportunity to dupe consumers into purchasing counterfeit tickets. Legacy anti-counterfeiting technologies for tickets are easily copied, complete with instructional videos. However, one public company is providing the next generation of anti-counterfeiting technology for the ticketing industry, winning a recent contract to supply the technology for UEFA EURO 2016 tickets.

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## Reasons to Read this Report

1. Discover the prevalence of counterfeit tickets;
2. Learn how easy it is to get the basic resources to counterfeit common ticket security features;
3. Find out about a public company whose technology can stem the counterfeit ticket industry.

## Introduction

**What a sinking feeling it must be.** You've spent almost \$800 for two game tickets from some guy advertising on an Internet website. The tickets look real enough; your son is excited. After spending \$60 to park downtown, you and Junior hasten your strides on the way to the game. You hand your tickets to the ticket taker and wait for her to let you pass as she scans them. But there's a problem: She tells you that your tickets are fake. "It can't be," you say with a hint of desperation. She has a colleague confirm the bad news and apologetically returns your fake tickets. Your heart freezes; your son doesn't know what's going on. His exuberant face sees the horror in yours. His smile falls. You tell him that neither of you are going to the game and lead him away as he begins to cry.

**Unfortunately, this scenario occurs frequently.**

Counterfeiting is a huge industry and event tickets are no exception. Duping the public is easy because most people don't take the time to know what an event ticket looks like, or, in the case of Super Bowl 50, have time to know since only physical tickets were issued and then released five days before the game.



*Counterfeit Minnesota Wild Ticket Victim*

## Ticket Fraud Abounds

**Any event that requires a ticket to enter is an opportunity for counterfeiters to make a profit.** Consider these examples:

- [New York theater goers pay US\\$600 for counterfeit Hamilton musical tickets](#)
- [Tickets sold in advance of Pope Francis' visit to Mexico, even though the diocese had yet to print tickets](#)
- [Hundreds of fans turned away from Taylor Swift concert because of fake tickets](#)

- [220 fake tickets seized at Grateful Dead concert](#)
- [Man loses thousands to All-Star Weekend online ticket scam](#)
- [4 N.J. Transit conductors sold stolen tickets, prosecutors say](#)
- [Fake Statue of Liberty ticket seller attacks authorized rival over scam warning](#)
- [Man accused of masquerading as priest busted over fake tickets to see the Pope](#)
- [Fake Bruce Springsteen tickets pulled from StubHub and TicketNetwork](#)
- [Pair accused of selling counterfeit Oktoberfest tickets](#)
- [What do you mean those Bieber tickets are fake?](#)
- [Brazil police bust black-market ticket ring for Rio Olympics](#)

There are three primary components to this problem. Anti-counterfeiting features can't solve two of these. One is that many consumers don't know what event tickets look. They're unaware of security features and the way the ticket is supposed to look. The second issue is that people let their greed persuade them. Often, ticket deals seem too good to be true and, unfortunately, they are. Technology can't stem lack of education and greed. However, education and next generation anti-counterfeiting technology can protect consumers from purchasing fake tickets.



*If you bought these tickets, would you know that they are fake? Would you know what they're supposed to look like and what security features they should have?*

Source: [KOIN 6](#)

## Criminals Benefit

We've written extensively how counterfeit goods, especially fake drugs and clothing, benefit criminal organizations. Often, these organizations have penetrated governments to facilitate their activities (counterfeiting, drug trafficking, human smuggling). [José Grinda](#), a Spanish prosecutor who has fought eastern European criminal organizations, noted that he often has difficulty distinguishing the interests of these organizations from their host governments. [Former INTERPOL Secretary General Ronald K. Noble connected the seizure of €1 million of counterfeit brake pads and shock absorbers in Lebanon to terrorists.](#) "Subsequent enquiries revealed that profits from these consignments, had they not been intercepted, were destined for supporters of Hizbullah," said Mr. Noble. "Linking the Hizbullah to counterfeit brake parts shows not only the link between terrorist financing and intellectual property crime, but also how intellectual property crime is not

*a victimless one - the potential danger to the public from this sort of criminal activity is too serious for governments and law enforcement to ignore.”*

**Counterfeit tickets haven't escaped the domain of criminal gangs.** For example, American federal authorities are cracking down on a [counterfeit sports ticket ring](#) run by a Chicago street gang. Sixteen people face forgery charges; authorities have arrested eleven suspects and are seeking five more. The gang allegedly sold fake Bears, Bulls, and Blackhawks tickets. Some of the fakes were sold for \$450.

## Market

**In 2013, the American Association of Retired Persons [estimated](#) that nearly 5 million people purchase fake event tickets every year.** According to [CNBC](#), this translates into \$4 million of monthly losses for the music industry.

**Sports tickets are an attractive market for counterfeiters.** League schedules allow for repeat revenues for home games – not only for local fans but for visitors. Exhibit 1 shows the potential for repeat counterfeiting revenues for tickets in the world's largest attended sports leagues.

**The global anti-counterfeit packaging market ([both security document AND event ticketing](#)) generated \$22.8 billion in 2014 and is forecast to reach \$38.3 billion by 2020.** North America and Europe constitute [the two largest regions](#) for security documents and event ticketing anti-counterfeit packaging marketing – 84% of the revenue.

## Exhibit 1: Best Attended Sports Leagues

### Top sports league attendances: by average crowd, most recent season

#### OUTDOOR

Rank	Sport	League	Season	Ave	Total
<b>No1</b>	Am Football	<b>NFL</b>	2014-15	<b>68,776</b>	17,606,643
			2013-14	<b>68,401</b>	17,510,569
<b>No2</b>	Football	<b>Bundesliga</b>	2013-14	<b>43,500</b>	13,311,136
			2012-13	<b>41,914</b>	12,825,684
<b>No3</b>	Football	<b>Premier League</b>	2013-14	<b>36,695</b>	13,943,910
			2012-13	<b>35,931</b>	13,653,780
<b>No4</b>	Aussie rules	<b>AFL</b>	2014	<b>32,346</b>	6,404,569
			2013	<b>32,163</b>	6,368,346
<b>No5</b>	Baseball	<b>MLB</b>	2014	<b>30,346</b>	73,739,622
			2013	<b>30,514</b>	74,026,895
<b>No6</b>	Cricket	<b>IPL</b>	2014	<b>27,833</b>	1,558,664
			2013	<b>c.22,000</b>	c.1,400,000
<b>No7</b>	Football	<b>La Liga</b>	2013-14	<b>26,766</b>	10,171,062
			2012-13	<b>29,330</b>	11,145,277
<b>No8</b>	Baseball	<b>NPB (Japan)</b>	2014	<b>26,458</b>	22,859,351
			2013	<b>25,518</b>	22,047,941
<b>No9</b>	Canadian football	<b>CFL</b>	2014	<b>25,286</b>	2,048,164
			2013	<b>27,005</b>	1,944,360
<b>No10</b>	Football	<b>Serie A</b>	2013-14	<b>23,332</b>	8,866,274
			2012-13	<b>23,300</b>	8,854,000
<b>INDOOR</b>					
<b>No1</b>	Basketball	<b>NBA</b>	2014-15	<b>17,809</b>	21,905,470
			2013-14	<b>17,407</b>	21,411,543
<b>No2</b>	Ice hockey	<b>NHL</b>	2014-15	<b>17,503</b>	21,528,192
			2013-14	<b>17,587</b>	21,632,479

Source: [Sporting Intelligence](#)



## Legacy Technologies Used to “Protect” Tickets

**Anti-counterfeit security features for tickets have not changed much.** Common features include:

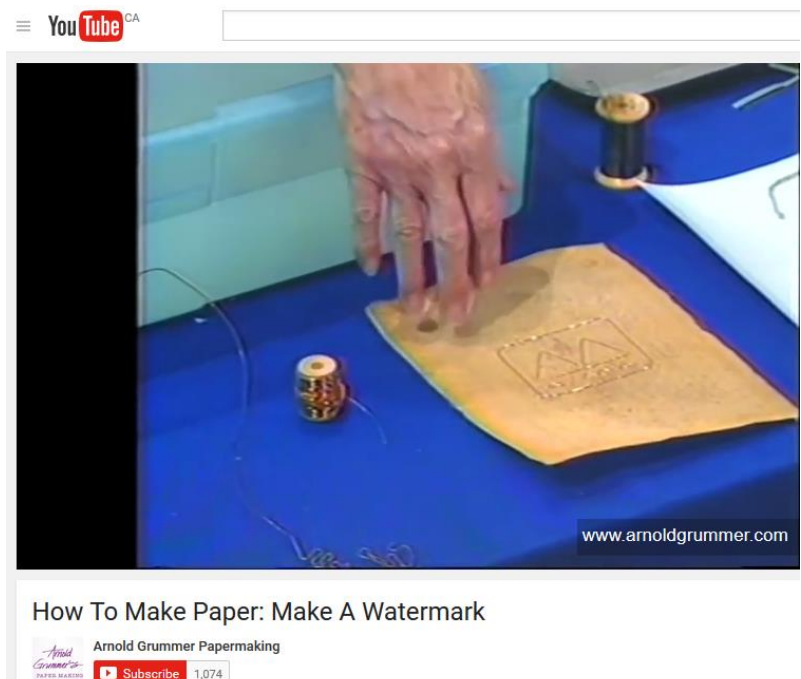
- Watermarks, images that appear lighter or darker when light is shined upon it;
- Bar codes, rows of lines representing numbers that scanners authenticate;
- Scratch off latex, where a code or image is revealed once the latex is removed;
- UV coatings, an image that is revealed when an ultraviolet light is shined upon it, and;
- Holograms, images that change colour, depending upon how light shines upon it.

**Unfortunately, all of these legacy security features can be copied.**

Bar codes are easily duplicated using a computer scanner and printer. Free barcode generation software is easily available via the Internet. Watermarks are surprisingly low-tech and simple to make (YouTube abounds with several videos). Scratch off latex – easily imitated with a mixture of equal parts of acrylic paint and dish detergent. Several websites, especially tattoo equipment suppliers, advertise UV

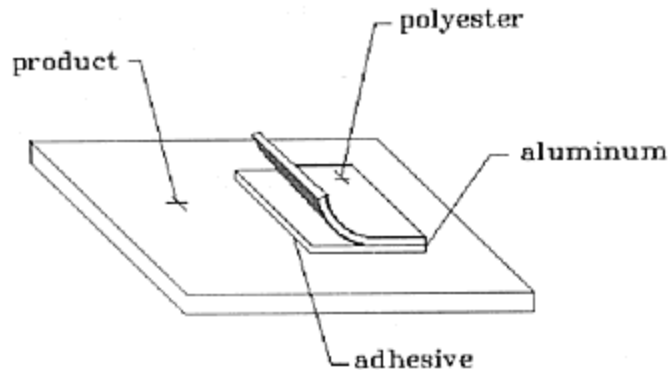
inks; other websites offer UV paints. All of this suggests that professionals and amateurs have resources to create counterfeit tickets.

**Many people believe holograms are infallible when the opposite is true.** A hologram's basic structure is simple enough (Exhibit 2) with the difficult part being how to duplicate the holographic image. Counterfeiters can use a hologram itself to create an embossing die mold. Many times, the differences between the counterfeit and genuine holograms are indistinguishable. Another method involves using a genuine hologram to create a photoresist plate which is used to create the embossing die. Other less complicated but less authentic methods can also create holograms.



Source: YouTube.com

## Exhibit 2: Basic Hologram Structure



Source: [New Light Industries](#)

## The Next Generation of Anti-Counterfeiting Technology

**Since almost anyone can replicate conventional ticket security features, why are they still used?** More important, does any technology exist that can protect consumers from being scammed by counterfeiters?

To answer the latter question, “yes”. Nanotech Security ([NTS:TSXV](#)), a Sophic Capital client, has the technology that fashion companies can use to differentiate genuine items from fakes. Nanotech Security’s technology is KolourOptik™, a nanoscience solution based upon the optical properties of the blue morpho butterfly. KolourOptik™ creates a grid of nano-sized holes that replicate the interaction light has with this butterfly’s wings. The result is the creation of vibrantly-coloured, butterfly effect images that appear similar to LEDs when illuminated – secure images that are nearly impossible to duplicate, unlike traditional holograms.



[www.nanosecurity.ca](http://www.nanosecurity.ca)

**KolourOptik™ images are perfectly suited for event tickets.** The reason is that users interact with it. KolourOptik™’s vibrant colours draw people to examine the rich features, and once people know how to engage with a security feature, they understand what differentiates fake from genuine articles.

**KolourOptik™’s is nearly impossible to duplicate.** Unlike holograms, which can be peeled off, KolourOptik™ images are embedded *into* the packaging, the product, or both. This technology is



*KolourOptik™ selected to authenticate TED passes.*

near impossible to counterfeit, given the complexity of the KolourOptik™ stamps (which are easily embedded in any manufacturing process). Plus, counterfeiters would need to invest in multimillion dollar equipment to produce the stamp and have advanced degrees in nanoscience and/or optics. **As an extra level of authenticity, event ticketers could even embed data in the design thereby allowing all points in the supply chain to track and authenticate the ticket.**

**Returning to our original question about why conventional and easily counterfeited security features are still used on event tickets, we can only hazard a guess: Little else exists beyond KolourOptik™ and few organizations know about it.** For example, on February 12, 2016, the [National Football League extended its partnership with OpSec Security](#) for hologram labels on NFL or club-licensed merchandise. The press release disclosed that OpSec provided a “major component” to Super Bowl 50 tickets – specifically, “a true-color OpSec hologram – this year, with the skyline of downtown San Francisco, the gold 50, and the commemorative Duke football.” Perhaps for an event like Super Bowl where ticket distribution was highly controlled a hologram is sufficient. But clearly, for the majority of ticketed events where secondary markets exist, we believe holograms seem inadequate.

**However, UEFA selected Nanotech Security to provide authentication and brand-protection technology for all Admission Tickets to the Euro 2016™ Football Championships, replacing hologram technology used at past events.** UEFA elaborated on ticket security features (Exhibit 3); UEFA claims that the photonic high-resolution “coloured hologram” created by Nanotech of tournament mascot Super Victor is the first time this type of technology has been used on a football ticket. Nanotech’s engineers used a complex mathematical algorithm and advanced manufacturing technologies (Exhibit 4) for Super Victor to accurately embed over two billion nano-sized holes on each UEFA Euro 2016® admission tickets produced. Only using the reflection of light and no ink, the nano-sized holes create Super Victor in a photonic intense high resolution image. Together with other ticket features, KolourOptik® brand-authentication technology helps secure the authenticity of each ticket and protects against ticket fraud.

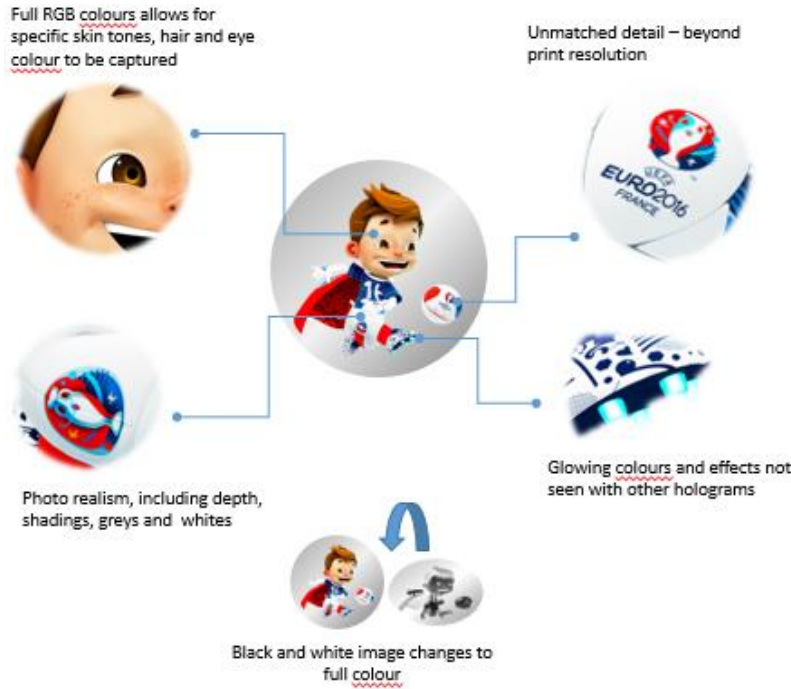
### Exhibit 3: UEFA Euro Ticket Design 2016 – Full Colour Hologram by Nanotech Security



Source: [UEFA](#)



**Exhibit 4: Details of Nanotech Security's KolourOptik™ on UEFA Euro Tickets**



Source: [Nanotech Security](#)

**Exhibit 5: Nanotech Security Characteristics for Investors to Consider**

NANOTECH SECURITIES	
<b>Disruptive Technology</b>	Arrays of colour-shifting, nanometer sized holes that can be embedded onto any surface. Optical thin film threads for banknotes
<b>Technology Protection</b>	Large patent portfolio wrapped in trade secrets
<b>Large Market Opportunity</b>	Counterfeiting could be a \$1.7 <b>trillion</b> industry in 2015
<b>Strong Management Team</b>	CEO is successful entrepreneur with decades of experience. CFO has 20 years of finance experience with public and private companies. CDO has 25 years in the banknote security industry
<b>High Inside Ownership</b>	28%
<b>Initial Large Customer Validation</b>	In discussions with Top 10 issuing authorities. Development contract with large issuing authority.

Source: Company reports, Sophic Capital

**Conclusions**

**Event tickets present lucrative opportunities for criminals.** Concerts, sporting events, theme parks – all present opportunities to dupe consumers who don't know what to look for in a ticket. Legacy ticket security features are easy to duplicate with instructions only a mouse click away. However, Nanotech Security's KolourOptik™ technology offers the next generation of ticket security protection that provides security beyond traditional holograms. With the Company's recent UEFA contract, we will have to see if more ticketed events such as sporting events, concerts, and theater will adopt KolourOptik™ to stem the counterfeit trade.

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