Experience the future of luxury with NFC

Protect your brand and enhance customer experiences

www.infineon.com/nfc-solutions

Counterfeiting impacts the brand

Counterfeit trade has a huge impact on luxury brands. Counterfeits tarnish brand image by creating a bad user experience. There has been a rise in sales through e-commerce portals in the past few years, which has undoubtedly been a boon.

However, this has inevitably increased the risk of the burgeoning online counterfeit goods market as well.

Importance of digitizing the brand

Brands that complement their physical offering with a "wow" digital customer experience have a much greater chance of success in a competitive landscape. This is especially the case if customers can use the digital technology to check the authenticity of the product they have bought.

A personalized experience can also be a powerful lever in driving repeat sales. In addition, brands can collect accurate customer data to run targeted marketing campaigns. They can track usage information and customer feedback to improve customer interactions across touch points and further contribute to an amazing customer experience.

Enter the phygital* world with NFC

Embedding near-field communication (NFC) tags into luxury items can address the counterfeit challenge while providing an enhanced user experience. NFC enables a two-way communication channel and provides well-secured product authentication.

Each luxury item with an NFC tag is assigned a unique digital identity that can be verified by the brand or the retailer so they can eliminate fakes before they reach customers. NFC tags allow the consumer to easily authenticate the product and have a truly phygital experience, which combines the best of both the physical and digital worlds.

Kick-start your NFC journey with a tap

The process to read the NFC tag is straightforward. The first step is to locate the NFC tag on the product.

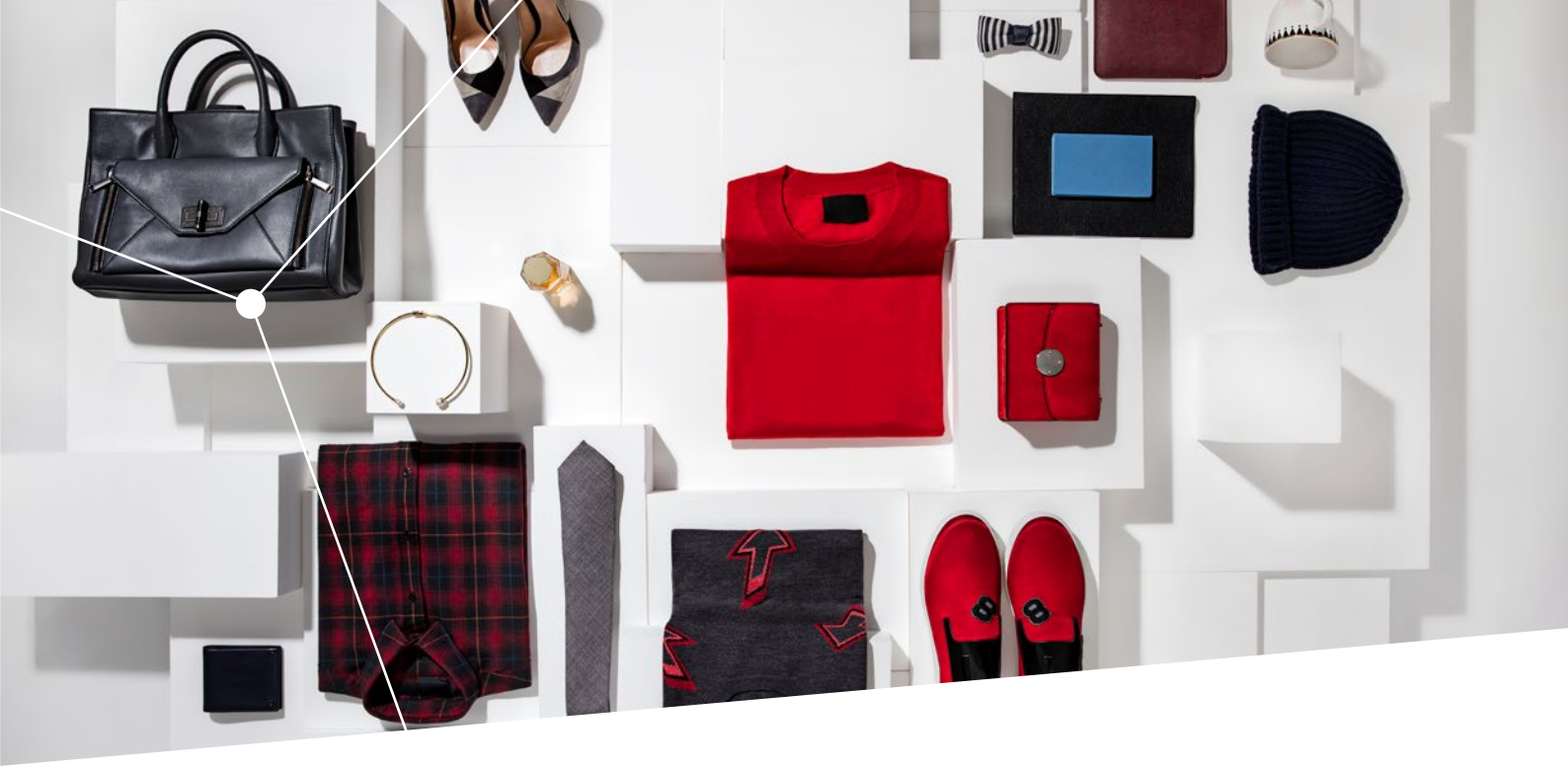
The wayfinding mark system tells users that an item includes NFC, and shows them where to tap.

*Phygital = physical + digital

$991 billion

total international trade in counterfeit products in 2022

Source: OECD/EUIPO



Broad and growing application spectrum

NFC transforms luxury items into an omni-channel experience, creating new opportunities for brands, retailers, and consumers. NFC-enabled functions and capabilities can be customized and integrated with existing applications.

The two most compelling use cases for NFC tags build on their ability to combat the risk of counterfeit goods and to deliver an intuitive customer experience. The tags can be programmed to store a website URL or an app download link, or to activate a chatbot, which – in itself – opens up a whole new set of possibilities. The consumer can access additional data on the product and complementary services. This could be anything from an overview of the raw materials used and information on material sourcing to the expiry date or reminders about upcoming service appointments.

Tags can also be programmed to allow a customer to register for the warranty or sign up for discounts. They can even support online marketing campaigns by inviting customers to special events, launches, or trials. All of which builds customer loyalty and fuels repeat sales.

Last but not least, brands can grow their businesses by leveraging additional tools to effectively manage their supply chains. NFC tags enable track and trace functionality along the entire supply chain. Each NFC tag comes with a unique identifier that can be tracked to prove the product is genuine. The underlying data is stored in the cloud or a blockchain. The customer taps the phone on the tag to trace the entire product journey – from source to store.

This real-time supply chain data can also be used by retailers and distributors to optimize inventory management. In addition, traceability simplifies reverse logistics for channel partners.

Our secured NFC tags (NFC4TCxxx family) provide a wide range of memory options starting from 304 bytes and scaling all the way to 4 kilobytes, giving luxury brands space to securely store data and build custom applications supporting customer engagement.

Brand

Brand protection
Maintain brand reputation with a good user experience

Intuitive customer experience
Build loyalty with two-way communication

Improved revenue
Counteract fakes and unauthorized sales channels

Reduced marketing spends
Accurate customer data collection for targeted marketing campaigns

Luxury resale market
Enable sales of authentic second-hand luxury items

Retailer/consumer

Origin of the product
Reliable check for product authenticity

One-tap access to the brand experience
Get coupons, personalized offers, and loyalty rewards. Enable virtual try-on and social sharing.

Other product information
Detailed view of features, materials used, date of manufacture, identification of limited editions, etc.

Secured NFC benefits the brand, the retailer, and the end consumer

Secured NFC tags are gaining traction across a growing number of luxury applications as they offer many compelling advantages.

Our secured NFC tags provide the following benefits:

Clone protection and robust security

Secured NFC tags feature advanced cryptography algorithms.

Advanced anti-counterfeiting

Reliable check for product authenticity. Protection of revenues thanks to easy identification of product sales in unauthorized markets.

Enhanced user experience

NFC tags are intuitive – all the consumer needs to do is tap the product with their phone to read the tag and authenticate their purchase.

Unobtrusive design

NFC can easily and subtly be embedded into the brand graphics or packaging so the technology has no impact on the brand esthetics or design.

Flexible deployment for higher ROI

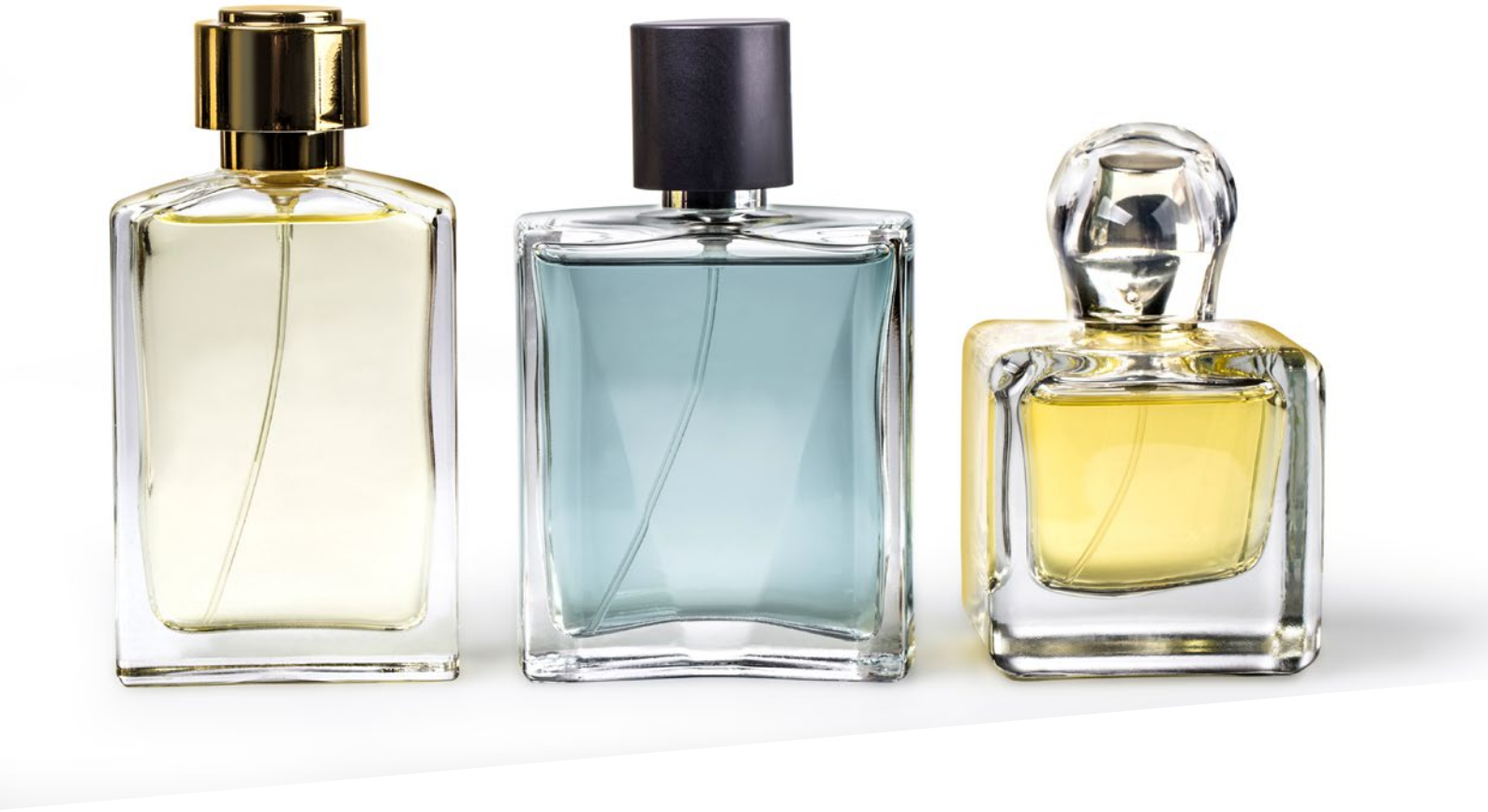
The same chip supports complementary use cases such as enabling consumer engagement or track and trace functionality along the supply chain, thus increasing return on investment.

Why secured NFC tags?

Secured NFC tags are built with a chip that enables advanced cryptography features, especially suited to the protection of high-value assets. They are particularly beneficial for luxury brands since plain NFC tags are often easy to clone, thus compromising the brand integrity.

The entire NFC4TCxxx family of NFC tags is designed to deliver the highest levels of security, thereby instantly and reliably establishing authenticity. The NFC4TCxxx tag is built on an open standard security architecture based on AES-128 symmetric key cryptography. It provides inherent resistance to physical attacks like differential power analysis (DPA) and differential fault analysis (DFA).

NFC tags are non-battery-powered passive devices. The user has full control over privacy and data sharing. The brand can collect information only when the consumer taps on the tag using a smartphone.



Rich portfolio of NFC tags for all use cases

Infineon offers a broad portfolio of NFC tags to support different protection requirements. The tags come in varying levels of security – scaling from basic password-based tags to more secure cryptography-enabled tags.

Features:

- Contactless interface to ISO/IEC 14443 Type A, NFC Forum Type 4 Tag
- Up to 4 KB user memory for data storage
- Built-in command set based on ISO/IEC 7816-4/-9
- Fully configurable file system based on ISO/IEC 7816-4
- Certified to the CIPURSE™ open standard

So how do our NFC tags work?

Our NFC4TCxxx tags work on the principle of symmetric cryptography. The 128-bit AES master key is stored in the backend cloud server and a corresponding derived key is stored in each tag. This key is unique to each tag. Whenever the user taps the NFC app on a product featuring an NFC tag, the unique ID and an authentication command (derived from the crypto keys) are exchanged between the tag and the cloud server.

If the keys are correct, the mutual authentication process is successful and the user can read out the data from the tag. Cloned tags that do not have the correct crypto keys would result in a fail in the mutual authentication process.

Kick-start your NFC anti-counterfeit project

Our NFC2Go starter kit is designed to fast-track your standalone brand protection development project.

Kit contents and support tools:

- 8 NFC4TCxxx stickers (round and rectangular form)
- NFC verifier app: Free app available on iOS and Android store
- Infineon secured NFC tag IDE: A PC personalization tool to personalize the tags
- Backend cloud authentication software
- Sample codes available on GitHub repository

With the app and PC personalization tool, you can rapidly prototype your anti-counterfeit application by personalizing the keys and customizing the brand content. You can program the tags with your company website, product details, service information, and more. In addition, the kit allows solution providers to easily access and download the reference code for cloud deployment and smartphone app development, so they can quickly build solutions or integrate them with their own apps.

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