FALKEN Secure Networks

RFID for the Wine and Spirits Industry

Tracking from Vineyard to Glass

FSN is now offering two unique RFID-enabled solutions with tag and reader hardware integration on hosted enterprise SaaS (Software as a Service) tracking platforms which have been designed to overcome the shortcomings of previously available systems. Specifically, they have been developed to address:

- RFID Tag read performance and read range on bottles full of liquid with metal foil or plastic cap seals and caps.
- Reading out of sight RFID tags on 'middle of the pallet cases'
- Supply Chain and End User Brand Authentication, Anti-Tampering and Anti-Counterfeiting

The FSN CapTag-01 is designed to be applied over a bottle's cap or cork, as well as its aluminum foil seal and FSN Cap Tag-02 for plastic shrink-wrap seal.

The key measureable benefits of RFID are well documented, including rapid, inventory counts without handling items, and 99%+ accurate results scanning thousands of items in minutes.

1. **FSN RFID Cap Tag** – Low cost, efficient and accurate inventory counts at case or individual bottle level. Utilizes Passive UHF RFID technology, leverages metal foil caps and enclosures to enhance its antenna for long read ranges up to 15 feet. Two versions available for plastic or metal foil bottle cap seal enclosures. Integrated with hosted Retail Services Database and RFID Platform.
2. **NFC OPENSENSE™:** Empower customer to authenticate the product, quickly identify Opened or Sealed status and alert for any tampering event. Utilizes NFC RFID technology, read by tapping tag with a regular NFC smartphone. The NFC tag continues to operate after bottle opening thereby providing a continuous communication and marketing link to the product and end user. Integrated on Evrythng NFC Platform and Database.

Supply Chain and Retail Level:

Wine Distribution Centers, Retailers and Restaurants and can now use RFID to monitor and quickly inventory their stocks and shipments of wine.

UHF RFID CapTag for Wine, Spirits, Cosmetics

The foil-CapTag, is break-through technology developed in partnership with ePix and IPC, offering a 15-foot read range by leveraging a bottle's foil packaging and liquid contents with another version for plastic cap seals.

FSN has partnered with global branded packaging company r-pac International Corp. for the introduction of a new ultrahigh-frequency (UHF) RFID cap tag for tracking bottle/case ID, verifying good shipped and received, faster and more accurate inventory counts, and minimizing out of stock conditions.

The tag was initially developed to take advantage of foil enclosures, as well as the fluid stored in a bottle, in order to extend the read range up to 15 feet or more. It is manufactured in several sizes and form factors with a version for plastic seal enclosures and with a choice of RFID chips. The tags are also "orientation-insensitive"—in other words, they can be interrogated equally well from any angle even when those bottles are inside sealed cases or clustered on shelves. The tag is employed in conjunction with 'IT-Lite' hosted cloud-based software to manage and share RFID read data with authorized members of a supply chain without the necessity of an IT infrastructure.

The foil-CapTag is designed to solve two problems that have stymied those who have tried to use EPC UHF RFID tags on bottles of high-value liquid or small products with a great deal of foil packaging, the company reports: limited tag readability and high cost. The CapTag can fit on foil covering a bottle cap or a box, and can use the foil as an antenna to boost its transmission. The tag also uses the RF signal's electrical field absorbed by wine, in order to boost the power of the backscatter signal that it sends back to an interrogator. And unlike other tags designed for such use cases, the foil-CapTag is half the cost

Supply Chain Traceability

At each stage of a bottle's journey to a store, the product's tag ID could be read again, and its status could then be updated on the server, via RFID readers and the hosted Retail Services software accessed by authorized users over the internet.

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BRAND AUTHENTICATION, ANTI-COUNTERFEITING, ANTI-TAMPERING

Want to empower your supply chain and end users to authenticate the product they are about to buy or just bought?.....

NFC tap here

This is where you want to go with the NFC OPENSENSE™ Label.

Counterfeiting, product tampering, contamination and grey marketing are all too common problems for high value items such as premium wines, spirits, cosmetics and tobacco. Seals, stamps, holograms can all be defeated and copied with today's sophisticated printing technology.

For example, China has reportedly become the second largest consumer of expensive wine in the world. But many Chinese wine connoisseurs aren't buying what they think they are, because counterfeiters apply fake—sometimes photocopied—labels to bottles of cheap wine or replace the vintage wine in real bottles with a different product. At least half the Château Lafite Rothschild-labeled wines sold in China do not come from France's Bordeaux region, according to Chinese officials, but are made on boats moored in international waters. "There seems to be a new swell of counterfeit wines and spirits in emerging markets like China for very expensive wines.

It's a very powerful business strategy, marketing concept to protect and build brand equity and differentiator to enable those in the distribution supply chain and end – users to be able to easily authenticate a high value product brand and ensure it has not been previously opened or tampered with……with their own smartphone. No special RFID Readers required. Previous solutions available involved a 'Break-on-Removal' feature, ie. No tag read, its been opened. The NFC OPENSENSE bonus is the tag continues to be operational post-sale and after opening to provide a continuous marketing communication link to that product and end-user. This can create significant additional strategic business value.

NFC OPENSENSE™ labels are designed for such a use case. NFC (Near Field Communications) tag technology, a variant of RFID, is integrated into a label such that it can be read by any NFC-enabled smartphone(such as Samsung, Google Nexus, LG, SONY, etc.), currently over 50% of the smartphones in service globally. As of Dec. 2015, NFC is built into the Apple iPhone 6+ and soon expected to be activated beyond the Apple Wallet application. Higher cost Industrial UHF RFID Readers are not required. This unique and patented label tag is designed with an antenna extension such that it breaks when the bottle or seal is opened but the tag affixed to the bottle or packaged product continues to operate and will provide a alert of 'product opened' the next time the tag is read. This would be a signal to the consumer to return the product to the vendor.

Fine Wine and Spirits connoisseurs can now learn more about the grapes used to make their wines or the foods that fit well with a certain vintage. RFID-based 'shopping assistants' that provides wine connoisseurs with additional information and even videos are being implemented. Shoppers tap the NFC OPENSENSE bottle label with their NFC –equipped smartphone, get immediately launched to a URL which provides additional information, even videos. Alternatively, move an RFID tagged bottle close to an information pod or kiosk and interactive information pops up on the screen.

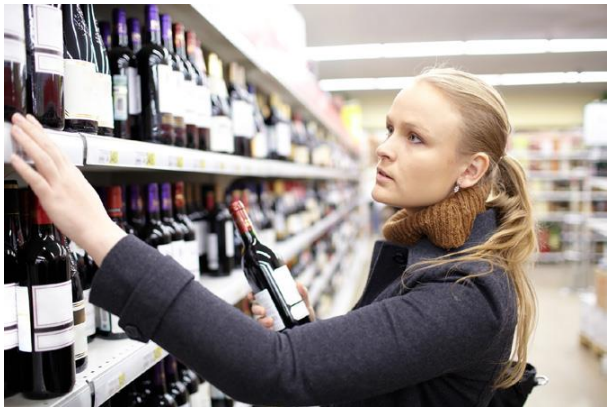
Another key marketing and brand management benefit of OPENSENSE is that it continues to provide a communication link to that product or end user post-sale and after it has been opened. A simple tap on the OPENSENSE label with a NFC-enabled smartphone immediately launches to a defined URL where additional information can be provided. Such information could include special offers for complementary products, recall notices, warranty, expiry dates,

product manufacturing information, loyalty points, etc. OPENSENSE has been implemented on Johnny Walker Blue Label Scotch in 2015 as well as several other high value wine and spirit brands.

HOW IT WORKS

- Each NFC OPENSENSE™ Label can be affixed directly to the bottle under the main product label with a tamper loop antenna extending to the mouth of the bottle and its seal or over the opening of a box.
- When a bottle or box seal is opened, the OpenSense™ tamper loop is broken at the engineered break point but the NFC tag detects the OPEN or SEALED state and continues to operate. The next time it is read with a NFC reader device or smartphone, it will report its updated status.

Read More…Click the PDF Icon for FSN's **NFC OPENSENSE DATASHEET**



Temperature Monitoring during Shipment and Storage.-The Role of Active RFID

Wine, cream-based liquer and beer companies worldwide express concerns over the difficulty of ensuring that the quality of their product was preserved during handling, transportation and distribution.

Maintaining temperatures in a reasonable range during shipment and storage plays a vital part in preserving the quality of fine wine, spirits and beer. However, there is often no record of variations of temperatures after the wine has left the wine producer's cellars or main distribution center.

A re-usable, battery-powered Active RFID V-Tag with integrated temperature sensor placed inside each case enables wine producers and distributors to monitor and log ambient temperatures in each case or loaded pallet with reporting alerts initiated if temperatures exceed a defined threshold and transmitted from a prime mover via cellular or satellite to a centralized server and database. Some vineyards enhance this "pedigree" by installing V-Tags in the specific vineyard to track its microclimate history throughout the growing and harvesting season.

This issue needed to be addressed as until now, the authenticity and knowledge of storage temperatures had been, at best, "*unverifiable*" with results including brand damage, loss of customer trust and uncollectable insurance policies.

FALKEN Secure Networks(FSN)—Your partner for RFID automation

If you choose to pursue RFID implementation in your organization, here is the FALKEN Secure Networks commitment to you:

- FSN will provide solution architects to work with you to define system requirements for your particular installation. Multiple locations can be networked together for a central and real-time view and centralized management.
- FSN will do a RFID site survey to validate radio frequencies, tag types, system design and performance
- FSN will provide all necessary hardware and software to make the system work for you
- FSN will integrate the system with your existing enterprise management software
- FSN will provide documentation for the system, including operating procedures
- FSN will train your people
- FSN will provide warranty and continued system support

FALKEN Secure Networks Inc. (FSN) is the leading System Integrator and Consulting Solution Architect for advanced Active/Passive Unified RFID systems that leverage standards-based technologies. FSN integrates RF technologies for asset visibility, using RFID, Wi-Fi and Real-Time Location Systems (RTLS) and various sensors for cost-effective design, and turn-key project implementation.

- For additional information or a detailed proposal -

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