RETAIL

RFID CASE STUDY: Cleor

In collaboration with

frequentiel TAGEOS

Cleor Achieves Rapid ROI with RFID

Customer:

Cleor, an innovative jewelry chain based in France, began in 1997 with just one store. By anticipating trends, offering good value, and marketing jewelry as must-have fashion accessories, Cleor quickly attracted clientele. Today, Cleor has over 50 stores located primarily in Paris, northern France, and western France. With a launch rate of approximately ten new stores per year, Cleor anticipates growing to over 60 stores by the end of 2011, as it expands into southern France.

Challenge:

In moving close to one million pieces of jewelry each year, Cleor manages over 10,000 different stock-keeping units (SKUs) from many suppliers around the world. Suppliers send their goods to Cleor's one distribution center DC/warehouse near Paris, grouping as many as 100 pieces of jewelry together in plastic bags. Receiving employees check each of these bags to verify that the contents match the order placed with that supplier, and then update the DC/warehouse management system as well as the company enterprise resource planning (ERP) system accordingly. Because of the merchandise value, Cleor delivers replenishment orders (typically smaller bags containing 20-30 pieces of jewelry) to stores regularly. When shipments arrive at the store, employees must reconcile the delivery with the order and determine the proper display location—a process made difficult by the sheer number of different SKUs. In addition, Cleor management has stringent standards with regard to displaying their merchandise so as to maintain their signature store appearance.

To manage their merchandise, Cleor had employed a barcode solution. The size of the jewelry necessitated very small labels with correspondingly small barcodes. Barcodes need to be in the line-of-sight of a barcode reader in order to be read, so reading them in the display window or grouped into a bag presented a challenge. Because of the jewelry value, large number of differing SKUs, and to comply with financial laws, sales associates had to take inventory frequently, a process that involved physically removing the jewelry from its spot in the display case, scanning the item, and returning it to the proper location. This time-consuming process lead to more handling of the jewelry than desirable (with resulting potential merchandise damage), and less time spent on sales. With only one to two sales associates per store, often one person would be consumed with taking inventory, adversely impacting customer service as well.

While investigating methods for improving inventory control, Cleor was introduced to radio frequency identification (RFID)

technology. Impressed by the technology's performance in the first tests, Cleor decided to RFID tag all of their products with the goal of improving logistics efficiency and accuracy across their entire operation including:

- Receiving/reconciling supplier shipments at the DC/warehouse
- Picking/shipping from the DC/warehouse to the stores
- Receiving/reconciling DC/warehouse deliveries at stores
- Controlling in-store inventory
- Determining the location of merchandise in the display windows

After reviewing possible contenders, Cleor opted to use Frequentiel, a French company with strong expertise in RFID, as their system integrator. Frequentiel partnered with Tageos, a manufacturer of RFID labels and antennas, to develop the reader antennas, selected Impinj Speedway® Revolution readers for the installed fixed readers, and chose Psion Teklogix mobile readers (powered by Impinj's Indy® reader chips).

Solution:

The Frequentiel/Tageos team responded to the Cleor challenge by designing a complete solution using off-the-shelf hardware from Impinj and Psion Teklogix, custom software/middleware, custom reader antennas, and printer-encoders from Toshiba.

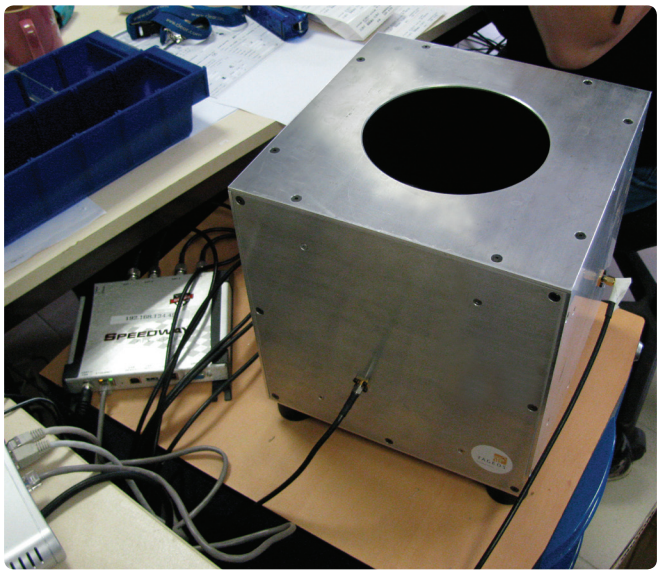
Distribution Center/Warehouse

The nature of Cleor's merchandise created tight tag requirements in terms of size (small) and appearance (shiny, attractive) that restricted options. These tag constraints in turn placed greater demands on the reader and reader antenna performance. Off-the-shelf antennas wouldn't suffice for the application, and the reader had to have the highest performance available.

The DC/warehouse receiving area presented the most difficult challenge, because operation requirements included reading up to 100 small tags on metal objects in close proximity within a bag, while not reading any tags outside of the bag. Tageos developed an antenna specifically for this application. "The Cube" antenna, which consists of several antenna elements in one housing, allows tag reads from any direction. This unique antenna arrangement, combined with Impinj's high-performance Speedway® Revolution reader proved equal to the task. Instead of individually removing each piece from the bag, scanning a barcode, and replacing the item, employees now simply drop the entire bag into the cube antenna. The tags are read and these items are automatically entered into the inventory. Automating the shipment receiving process has dramatically reduced the time spent inspecting jewelry at the DC/warehouse, resulting in considerable cost savings as well as increased accuracy.

The other RFID read location in the DC/warehouse is on the shipping side. After employees pick the orders for each store, they verify the shipment. To facilitate reading 20-30 pieces of jewelry packaged together into a smaller plastic bag, Tageos designed a mat antenna.

After picking the ordered items, employees place the entire bag on top of the mat. The items are read by the Impinj reader, and crosschecked against the order to verify accuracy.



Employees simply drop the entire bag of 100 jewels into the cube antenna to verify and reconcile supplier shipments.

Employees verify correct picking of store orders by placing jewels on mat antenna.

To take inventory, associates merely wave the wand antenna paddle over the merchandise.

Cleor currently uses approximately one dozen Impinj reader/Tageos antenna combinations in their DC/warehouse.

In-store operations

Frequentiel uses the same mat antenna and Impinj reader combination to verify incoming deliveries at the stores. Because no backroom storage area exists, the only spot available to perform delivery verification is at the point-of-sale. Space restrictions necessitated a small form-factor reader, and unobtrusive antenna arrangement. Impinj's Speedway Revolution reader satisfied the requirements for a compact, high-performance reader and the low-height Tageos mat antenna also worked well for this purpose. Because Frequentiel wrote interface software connecting the reader to Cleor's existing ERP system from Odeis, sales staff use the same reader and antenna arrangement to complete sales transactions. (There are no privacy concerns, as Cleor associates remove and discard the RFID tags upon sale of the item.) Cleor equipped each store with one Impinj reader/Tageos mat antenna combination, using more than 50 such combinations throughout their enterprise. Here, as at the DC/warehouse, RFID has dramatically cut the time spent on stock delivery verification as well as increasing the accuracy of the inventory.

Inventory

The two main goals of Cleor's inventory taking process are to verify stock levels, and to identify the location of the stock. For this task, Frequentiel decided to use a handheld reader, selecting the Psion Teklogix mobile reader specifically because of its ability to support an external antenna. The desire to individually identify each piece of jewelry necessitated restricting the read range of the antenna to no greater than 5 cm. Tageos designed a short-range paddle antenna to use with the handheld reader for this purpose, and Frequentiel wrote custom software for the operation.

A process that used to consume four days of a sales associate's time, now requires only four hours.

To take inventory, store associates no longer have to move any of the merchandise. Instead, they hold the antenna paddle over the items in the display case. As each item is read, the handheld displays a picture to help the clerk verify the read. If any issue arises, software on the handheld helps the clerk resolve the problem. The return on investment for inventory control has been substantial. A process that used to consume four days of a sales clerk's time, now requires only four hours. In addition to the increase in inventory efficiency, Cleor has observed reduced out-of-stocks, an overall reduction in stock levels with the greater inventory accuracy, and a definite increase in sales.

Tag Encoding

Freqentiel worked with Toshiba printer-encoders to create the RFID-enabled barcode tags. The encoders provision each tag with a unique identifier. Such item-level serialization is not possible with barcodes. The Cleor DC/warehouse uses about one-half dozen printers for label creation. And as suppliers begin to ship stock tagged at the source, the suppliers also are beginning to use the same printer-encoders.

Project Timeline

The Cleor project—an exceptionally swift development--took only eight months from tag selection to deployment in the first ten stores. Tageos developed the application-specific antennas, while Frequentiel performed the hardware integration and software development. Frequentiel developed the handheld reader application from the ground up, wrote the interface between the handheld reader and the Impinj reader application, and worked in partnership with Odeis to develop the interface with Cleor's existing ERP system.

Because the Impinj reader was so easy to deploy (just plug in and go) as was the handheld reader, training by Frequentiel of Cleor employees was minimal. After training two Cleor employees, those employees then trained others.

Cleor has been very pleased with the results of their decision to move to RFID, and plans more RFID innovation.

"This innovative RFID solution revolutionizes the logistics in the sector of jewelry retailing."

Aurelien Senechal
Managing Director, Cleor

About Frequentiel

Frequentiel, a leading French service provider specializing in identification, traceability, and mobility technologies with strong expertise in RFID, offers comprehensive service: consulting, engineering, and integration. Frequentiel provides a single point of contact between customers and RFID hardware/software solution providers, handling all details from business analysis through deployment. For more information, visit www.frequentiel.com.

About Impinj

Impinj, Inc. is the world's leading innovator in developing UHF Gen 2 RFID solutions for both item-level and supply-chain tagging. Impinj draws on its technical expertise and industry partnerships to deliver a wide range of products and solutions, comprising high-performance tag chips, readers, reader chips, software, antennas and systems integration. Impinj's products provide unprecedented performance, integration and cost effectiveness to a global customer base across numerous vertical markets with applications including inventory management, asset tracking, authentication and serialization. For more information, visit www.impinj.com.

About Tageos

Tageos specializes in the end-to-end design and manufacturing of high-volume passive RFID labels. With its exclusive process—a serious breakthrough with respect to existing techniques—Tageos benefits from the lowest cost of production on the market, while offering maximum quality and performance. Tageos also developed an expertise in the development of on-demand RFID antenna systems for specific applications. For more information, visit www.tageos.com.

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