

# RFID Profile: Metro Group's Galeria Kaufhof

## Item-level, near-field RFID technology in action

**Customer:** Germany's Metro Group is one of the largest retail companies in the world, employing more than 270,000 people worldwide across four categories: wholesale (Metro Cash & Carry), food retail (Real hypermarkets and Extra supermarkets), non-food specialty stores (Media Markt and Saturn consumer electronics), and department stores (Galeria Kaufhof). Metro AG began in 1996 through a merger of the existing retail companies Asko Deutsche Kaufhaus AG, Kaufhof Holding AG, and Deutsche SB-Kauf AG. During the last ten years, they expanded into more than 30 countries and achieved combined sales in 2006 of close to 60 billion euros.

**Challenge:** The Metro Group set out to prove the value of UHF RFID across a broad scope of business processes spanning the distribution center to the retail floor. Their aims included greater supply chain visibility, real-time inventory management, and strategic data mining. Equally important, Metro also sought to create a better shopping experience for their customers. To achieve these goals, Metro desired an end-to-end UHF, EPCglobal standards-based solution, which would operate from the warehouse to the point-of-sale, all integrated into their enterprise-level systems.


**Solution:** In selecting the third floor men's department of their Essen, Germany store for the RFID pilot deployment, Metro could test the performance of their end-to-end solution in a contained manner. After tagging each apparel item at the distribution center, RFID readers read the individual garments as they leave the DC, arrive at the back store, move from back store to sales floor, sit on retail shelving or hang on racks, are taken by a customer into a dressing room, and exit the store via the cashier checkout station.

*It is a comprehensive operation that addresses:*

- > inbound goods receipt
- > back store real-time inventory visibility and management
- > real-time sales floor inventory
- > merchandising via interactive displays and mirrors that suggest complementary clothing choices or accessories
- > improved customer service via smart shelves fitted with monitors indicating available garment sizes and style choices
- > efficient checkout via RFID-enabled point-of-sale terminals



# Impinj products satisfy a wide range of Metro's RFID requirements

 The many RFID-enabled fixtures powered by Impinj in the Metro Group's high-end Galeria Kaufhof department store in Essen, Germany, include pyramid table displays, flexible garment racks, wall panels, and other merchandising and display systems. Metro enabled the back store area, changing rooms, and point-of-sale stations with RFID capability as well.

These fixtures and desired read points cover a wide range of RFID equipment requirements, in particular the ability to read tags both very close to or far away from a reader antenna position, in the presence of other tags, and with considerable radio frequency interference.

**The mix of near- and far-field** requirements was one of the challenges the deployment plan presented, but one that also illustrates the flexibility of Impinj's technology. For example, reading stacked garments on display tables and at point-of-sale stations requires the use of UHF's near field. There are, however, points within the store where it is desirable to read a wider range of garments—applications that require far-field operation that not only meets Metro's particular performance objectives, but also does not interfere with the operation of other systems in the area. Upon deployment, the Speedway® readers

installed throughout the floor were able to capture all the Monza™-tagged garments of interest—both near and far.

For the distribution center, back store area, changing rooms, and point-of-sale stations, which encompassed both near- and far-field situations, Metro partnered Impinj with Checkpoint Systems. Checkpoint used both custom-designed and off-the-shelf antennas to work with Impinj's Speedway reader for their portals and stations.

Impinj devised specialized reader antenna architectures (built directly into the fixtures) for the pyramid table displays,

flexible garment racks, and wall panels (all near-field applications), in order to address the diversity of read point configurations.

As an example, it was imperative to read all items on a one-half meter wide shelf, but read nothing one and a half meters away. Not an easy task, but Impinj designs achieved greater than 99% read reliability, exceeding the customer requirement of reading at least 95% of desired tags at all times.

With the large number of read points throughout the store, the Speedway reader is able to notify the system when an item



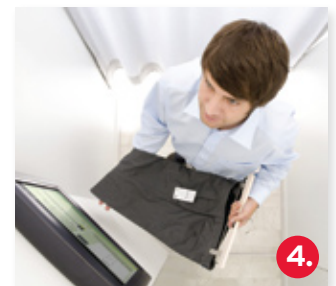
1. Impinj Speedway readers monitor backstore to front store transition.



2. Impinj near-field reader antennas enable inventory monitoring, even when items are closely stacked together.

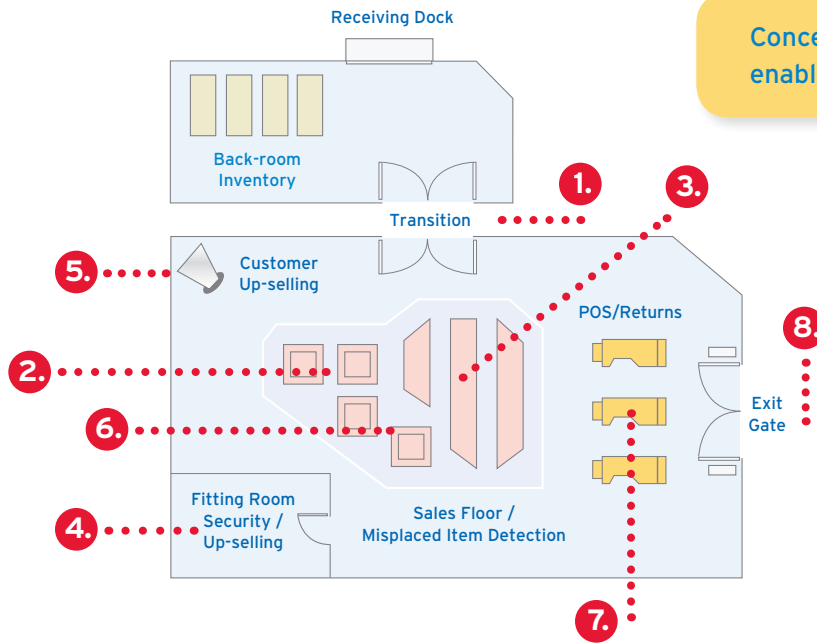


3. Read accuracy - Impinj technology monitors product on the shelves, while ignoring any items passing nearby.



4. Speedway readers enable changing room displays that provide customers with product data and availability information.

Conceptual floorplan—Impinj products enable RFID read points.



has been removed or returned to points within the store, yielding valuable data about the disposition of the merchandise.

For example, an item frequently tried on but seldom purchased would indicate a potential problem with that item, alerting managers to the fact.

Metro is also finding that customer-facing applications of the technology make for a better shopping experience. In addition to providing Metro with real-time data on floor inventory, the Speedway readers enable customers to simply move tagged garments before RFID-equipped informational kiosks

and obtain product information that instantly appears on a display screen at the station. Where previously the store mannequins offered shoppers limited ideas for combining garments in ways that might increase sales, these smart mirrors can offer combinations for every garment, without sales staff even being required.

Changing rooms fitted with RFID readers also work with displays that provide information to the customer on availability, special offers, or even make cross-selling recommendations based on the merchandise the customer has taken into the room.

Impinj's RFID technology is enabling faster, more efficient processes in logistics and warehouse management. And, of course, an added benefit is its ability to improve sales—not only via automatic suggestions to the customer, but by reducing out-of-stocks, and arming the store's merchandise buyers with the kind of intelligence that only a high-performance RFID solution can provide.



Smart mirrors enabled with Speedway readers increase merchandising capability.



Impinj near-field technology easily detects items with customer appeal that end up being rejected in the fitting rooms.



Impinj-enabled RFID supports faster checkout and better customer service at the point of sale.



Galeria Kaufhof's department store - the industry's first end-to-end, EPCglobal-standards-based, item-level RFID deployment.

FOR MORE INFORMATION ABOUT THE COMPANIES INVOLVED IN THIS CASE STUDY, PLEASE VISIT:

[WWW.METROGROUP.DE](http://WWW.METROGROUP.DE)

[WWW.CHECKPOINTSYSTEMS.COM](http://WWW.CHECKPOINTSYSTEMS.COM)

“When METRO Group started to deploy UHF RFID across a broad scope of business processes spanning the distribution center to the retail floor, we approached Impinj, a leader in developing RFID solutions, particularly for near-field, item-level applications. Impinj’s ability to deliver an end-to-end UHF, EPCglobal standards-based solution, which operated from warehouse to the point-of-sale, and at performance levels exceeding our requirements, helped to ensure the success of our RFID deployment.”

**Dr. Gerd Wolfram**  
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