SCAN The DATA CAPTURE Report

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Special
SCAN: The DATA CAPTURE Report
Reprint

Impinj Monza® 4 Tag Chip Piques Industry Interest

New chips feature True3D™ and QT™ technologies, delivering dramatic RFID application improvements.

As the world's leading retail giants begin to embrace RFID at the item level [*see SCAN/DCR 2/12/10*], the need for better chip technology has never been more prevalent. On February 23, **Impinj, Inc.** launched a new generation of Monza® 4 tags that will help meet that need. The new line, which is already garnering praise from major tag producers like **Avery Dennison RFID**, brings a whole new level of performance to RFID.

Scot Stelter, sr. director of product marketing for Impinj.

The Monza 4 family of premium tag chips is comprised of four high-performance configurations: Monza 4D, 4E, 4U and 4QT. The latest offering from the Seattle-based vendor combines the industry's highest read and write reliability, expanded memory, and innovative privacy technology to deliver significant benefits for businesses desiring fast RFID investment payback and ongoing operational improvements.

"RFID is past the early adopter stage," said Scot Stelter, senior director of product marketing, Impinj. "Companies looking at the technology today are past the curiosity stage; they're business people looking for real solutions to streamline their operations and make them more efficient.

The new features

"The new Monza 4 chip line addresses their needs," Stelter continued. "When designing this new technology, we focused on three main areas: performance enhancement, memory, and privacy/security."

The company press release addressed these features as follows:

■ **Performance:** Leveraging Impinj's patent-pending True3D antenna technology, Monza 4 chips boast the industry's highest read reliability—66% range improvement over the best performing competitive tag chip—while enabling complete orientation insensitivity for the first time. All Monza 4 chips have two fully independent antenna ports, eliminating tags' blind spots and significantly increasing read and write reliability in real-world applications where tag orientation is hard to control, such as in retail, baggage handling, and asset tracking.

■ **Memory:** The Monza 4 family offers memory options including 512 bits of user memory or up to 496 bits of EPC memory. Extended user memory

provides a portable, but private database to travel with the tag and supports applications where a reliable database connection is not available. Extended EPC memory enables compliance with regional and industry-segment mandates that require greater than 96-bit EPC numbers such as employed in the SGTIN198 tag data standard.

■ **Privacy:** Impinj's revolutionary QT technology, at the heart of Monza 4QT, protects confidential information by maintaining two separate data profiles (public and private) and allowing the tag owner to control data exposure. The chip's private mode reveals all data, while the public mode conceals confidential data and replaces the tag's EPC with a generic, user-defined number. A password can be required to switch between public and private modes. Additionally, QT technology enables the owner to selectively switch the tag into a short-range mode in which private profile data is accessible only at a very short range. This enhanced security helps prevent unauthorized readers from retrieving private data, further protecting both the business' confidential data and, in the case of retail applications, consumer privacy.

All of these features serve critical needs in the RFID sector and make the Monza 4 line one of the most versatile chips in the market place. Stelter elaborated on some of the benefits derived from the performance enhancements. "First, let's look at write reliability," said Stelter. "This is a big improvement from anything that we've seen before in the industry, and it's very important. Consider the instance where there are 50 pairs of socks in a box that is about to be shipped. Being able to bulk program the RFID item-level tags provides a huge cost saving."

With regard to memory, Stelter admits that the Monza 4 chip is not the first to offer 512 bits of user memory. But, until now, no one was really using that much memory. Impinj believed the added memory was a critical element to the new tag along with its other new enhancements.

On the matter of privacy, Stelter told *SCAN/DCR*, "Our 3QT chip allows users to have two tags in one: a private database that can only be accessed by owners and a public tag that is a simple license plate. Users can safeguard critical information by putting the tag in the public mode. Then, no one can read the tags in a box of jeans and tell what sizes, styles, colors, etc. are in the box. When in the short range mode, someone would have to literally open a box and hold the tag in their hands to read it."

Many of these features make it possible to use RFID as a valuable tool beyond the point of sale. By limiting what data can be captured from a tag, store owners can leave the tag on a retail item and use it in the case of returns or requests for service. Store owners can switch back and forth between the public and private modes.

A response to user demands

When asked where the idea for the new features came

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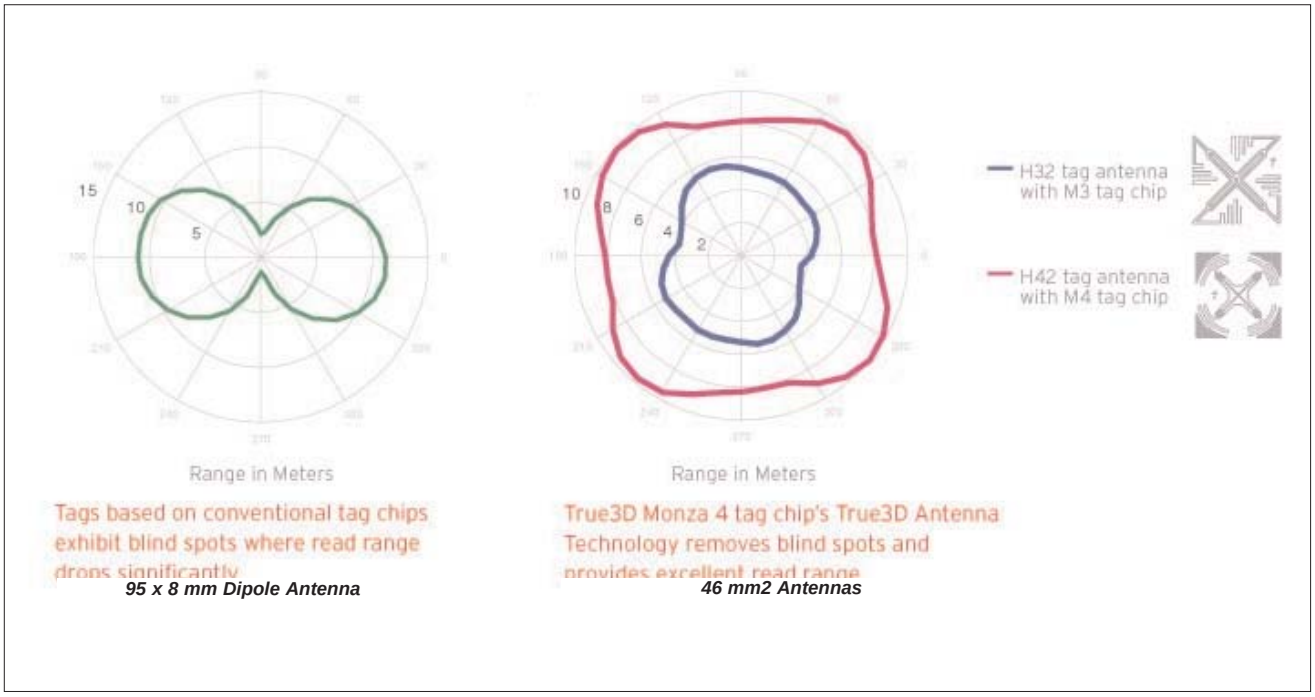
THE TRUE 3D ANTENNA SYSTEM AND HOW IT WORKS

True 3D is a patent-pending architecture that provides two fully independent antenna ports—enabling high performance, true omni-directional tags. For many applications, consistent orientation of a tag with respect to a reader presents a challenge. And as the read range plot below left illustrates, tags based on conventional tag chips can have blind spots—angles at which they are virtually invisible to a reader, even with creative and advanced tag antenna designs.

In the previous generation Monza 3 tag chips, a dual input structure enabled tags without blind spots for shorter range applications. The Monza 4 True3D antenna technology introduces further improvements by providing true orientation insensitivity as well as much better read range performance.
Compare the read range response of the Monza 4 tag (Impinj H42) below to the Monza 3 tag (Impinj H32) and conventional tag chip responses. The response pattern is circular, no angle has significantly lower sensitivity than any other. At every angle, the read range has increased significantly. And this doubling of read range performance comes in a very compact form factor tag.

With True3D antenna technology, readers see tags from any angle, resulting in higher read rates and smaller, less expensive tags—extending RFID benefits to more applications.



from, Stelter replied, "It came from our customers and from our review of global regulations. Our goal is to help drive better business applications for RFID use. We have to meet the business needs of the world while at the same time, assuring that our technologies are reliable and easy to use.

"The addition of our True 3D antenna system is a good example of how we solved all these elements," he continued. "It's easy to use and it eliminates blind spots during tag interrogation."

Endorsements

"We are excited to offer the Monza 4 family of chips in the Avery Dennison RFID product line," said Jack Farrell, vice president of the RFID Division at Avery Dennison. "With new, innovative features like True3D and QT technologies, Monza 4 will help our customers quickly reduce costs, increase sales and boost productivity."

"The use of passive UHF RFID technology is an expanding market opportunity attracting significant user interest within organizations looking to more effectively manage and track their assets, inventory, and much more," states Michael Liard, research director for RFID at **ABI Research** (Oyster Bay, NY). "We believe the increased availability of feature-rich passive UHF RFID IC offerings that are optimized for high performance, such as the Monza 4 family, is critical to enabling user adoption across a broad range of applications."

Closing

"We will still offer our Monza 3 offering," said Stelter. "It is the top selling chip in the world. But, for those users who require increased performance, the Monza 4 is going to be just what they need. We believe this new technology will enable us to tap into applications that were previously out of our reach."

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Check out the www.scandcr.com Web site.