

Most Innovative Use of RFID



“The Focus Magazine application was not only novel and innovative, it was thoroughly field-tested with a prototype and the final implementation. It will likely create a whole new market for RFID.”

—Awards judge J.T. (Tom) Cain, professor emeritus, department of electrical and computer engineering, University of Pittsburgh

RFID Helps German Publisher Put Focus on Ads

A forward-looking magazine employs an emerging technology to prove that an old medium isn't dead.

BY JENNIFER ZAINO

Times are tough for print media, with companies cutting back on advertising, and magazines and newspapers facing increasing competition from TV, the Internet and even mobile devices. But the country that invented the mechanical printing press and revolutionized communications in the mid-15th century isn't about to sit idly by and watch the demise of the magazine industry. German publisher Focus Magazine is deploying radio frequency identification technology to demonstrate the continuing strength of advertising in print publications—in particular, in *Focus*, its 16-year-old newsweekly.

Focus caters primarily to high-income, 30- to 59-year-old men, reaching 5.73 million people in Germany each week. Its urban, affluent readers are considered an attractive advertising target group, and

CEO Frank-Michael Müller wanted a way to document to media buyers that the ads they place are routinely viewed more than one time per issue by *Focus*'s coveted readership. He also wanted to be able to make that case without requiring any work on the part of the readers themselves.

While it's generally acknowledged that people flip through a print magazine a few times, and that each magazine is picked up by more than one person in a household, the data to prove readers' contact with advertisements in publications is hard to come by. Basically, publishers and advertisers have two ways to gauge the impact of editorial content and ads on readers: One approach is to use tests in which subscribers have to manually mark up pages as they read them. The problem is that readers tend to forget to do that as the field tests run on. The



other approach is to conduct after-the-fact surveys that rely on subscribers to remember that they picked up a particular issue, read a certain article and viewed a specific advertisement.

“For TV and the Internet, you have passive measures—the respondent has nothing to do; his contact is measured automatically,” Müller says. For example, a TV ratings box installed in a household collects information on what channels were watched and when, which can be correlated to the likelihood that a viewer has had contact with the ads running during those periods. On the Internet, the impact of online ads may be equated with the number of page views generated by the site where they appear.

Müller turned to RFID for its ability to passively evaluate the reading habits of *Focus* subscribers, as well as other members of their

households. “It’s not sufficient to know the number of subscribers, or the circulation or even the number of readers; we want to learn how the reader uses our magazine,” he says. “With RFID, we can show who uses a double-page [facing pages] in the magazine—when, how long and how often.”

A UNIQUE APPLICATION

After *Focus* published a story on the use of RFID technology in the supply chain, Müller got the idea to distribute RFID-tagged copies of the magazine with built-in RFID interrogators to selected subscribers to measure their contact with pages. *Focus* approached Infineon Technologies in 2003 to provide RFID consulting expertise and services. When Müller presented the plan, it was met with a sea of perplexed faces, but the

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consultants were so intrigued by the concept that Infineon took on the project. (Infineon sold its RFID consulting and software business to RF-iT Solutions in 2005.)

The RFID solution was developed by Magellan Technologies in conjunction with RF-iT Solutions. Selected subscribers would receive a special edition of the magazine in which all the left-hand pages would be embedded with 13.56 MHz tags. They'd also get a custom-made RFID interrogator, designed into a magazine holder. RF-iT Solutions and Magellan developed Reader Manager application software to calculate page numbers, which were written to each tag automatically by the interrogator. They also developed the You-R Open RFID operating environment to manage the data, as well as device and configuration tasks.

The interrogator, based on the ISO 18000-3.2 air interface protocol, had to be able to take constant reads of the roughly 100 tags that are close to and on top of each other in a stack the height of an average magazine as each tag moves into its range. Magellan had invented the phase jitter modulation (PJM) protocol for passive high-frequency RFID item-level identification systems, which require a reliable high-speed processing of items, including stacked items moving on high-speed conveyor belts. That made its technology the logical choice for reading tags in the dense magazine environment. Infineon provided the chips for the interrogator based on the PJM technology.

Prototype development began in 2003. Initial lab tests involved reading roughly 200 RFID tags from Magellan stacked in a magazine with a fixed interrogator. The same tests were repeated with a wireless, battery-operated version of the interrogator, which was integrated into the magazine holder for actual field use with subscribers. The initial tests showed that the reader software would need improvements to lower power consumption and lengthen battery life.

Focus conducted the first three-week field

test, which involved 14 people in six households, in 2006, though it still needed to work out some design kinks. The device was too bulky, and occasionally pages would be caught by the antenna. Still, Müller says it achieved 100 percent read rates. The second field test, which involved 27 people in 15 households, was concluded last summer. It used the same interrogator integrated into the magazine holder and also achieved 100 percent read rates. Subsequently, the developers designed a lighter-weight device with a new antenna. In addition, Infineon produced a new PJM chip for the interrogator that's one-fourth the size of the original, with better mechanics to remedy a problem of chips breaking during attachment.

The field tests were managed by Media Markt Analysen, which RFID-tagged the magazines and hand-delivered them to selected subscribers. Participants—up to five individuals in a household—were given two minutes of instruction on using the device. Each participant was assigned a different-colored button on the interrogator, which, when pressed, identified the family member and started the RFID recording. That enabled *Focus* to track how many members of the household read the magazine, and in what order. The interrogator automatically read the tagged pages, recording the date and time the pages were opened. It also logged how long the participant spent on each spread; for example, if page 65 was recorded, the user was considered to have viewed both pages 64 and 65. The tag included the identification number associated with the issue of the magazine.

FUTURE FOCUS

At the end of the test periods, Media Markt Analysen retrieved the magazine holders and used a USB connection to download the data to the Reader Manager software on a PC. The data provided insight into the reading habits of *Focus* subscribers: how often the

newsweekly was read by each member of the household, which pages were viewed the most, and whether the issue was read beyond the week it was published.

The test data sets are too small to generate statistically representative averages on these points, but the findings lend themselves to interesting speculations. “One of the most interesting results we got with RFID is that nearly every double-page is opened more than one time, so every advertiser has the chance not only of one contact but also of two or more,” Müller says. “This is a great advantage over TV, for example. There, a spot is sent once and then it’s over—this results in only one chance of contact.”

Following the second set of field tests, *Focus* conducted a traditional survey with participants, asking questions such as whether they could remember particular ads and the brands they represented. The results indicate that ad recollection depends less on the amount of time a subscriber spends actually reading through a publication than it does on the number of contacts he or she has with a page (including just flipping by it) over the course of time, as well as that person’s overall interest in the product itself.

In fact, *Focus* believes the results of its tests challenge a competitor’s claim that its publication is a better venue for advertisers because of the time its subscribers spend with its magazine versus the time *Focus* subscribers spend with that publication. “We want to check out whether the time spent on a magazine has an influence on ad recollection,” Müller says. “We suppose that this itself has no influence.”

This spring, *Focus*, which now owns 300 of the newly designed RFID-enabled magazine holders, plans to extend the tests to 100 households. It would also like to measure results for that competitor, *Der Spiegel*, though it hasn’t worked out the details on how to go about it. “After that, we will have enough data to say something about the average use of the magazines,” Müller says.

Next, *Focus* hopes to trial the RFID project in public areas, such as waiting rooms in doctors’ offices. The company sees additional opportunities to act as a service provider, offering its RFID equipment to other publishers that would like to conduct similar studies.

Focus has presented the results of the RFID tests to its business partners, and says these advertisers have been very interested in what they’ve seen so far. In fact, many advertisers have rebooked their ads to be part of the next RFID test. That includes some inserts, which could give advertisers even more opportunities for multiple contacts with *Focus* readers. “We want to strengthen the position of print by proving the multiple exposure,” Müller says. “The advertisers can benefit from our RFID experiments, because they can see if their ads attract the attention of the people. This is especially interesting for ad specials, such as bound inserts.”

The tests have also given *Focus* a sense of which articles were read most frequently and with sustained interest. When the data set expands, *Focus* could use the information to refine its editorial mission to reflect the issues that seem most important to its readership. “Certainly, we want to know which articles were the most interesting ones for our readers,” Müller says, though he adds that it’s too soon to draw conclusions for any conceptual restructuring of the magazine.

“*Focus*—Fakten für Ihre Zukunft [Facts for Your Future]” is the magazine’s mission statement, and it applies equally to the company at large as it breaks new ground for the publishing industry and the use of RFID technology. “Print media are facing challenges—reading behavior is changing,” Müller says. “It is our job to react, but to be able to do so we need detailed knowledge of these changes. Print media is still a mass media with many benefits for advertising customers. The RFID experiment is one of many ambitions to demonstrate these strengths.” ■