Tags for CDs Get a Boost

A maker of RFID products for libraries develops tag technology to ensure smart labels on CDs and DVDs are successfully read 100 percent of the time.

By Diane Marie Ward

Aug. 6, 2004—Like retailers, libraries keep items that might be susceptible to theft separate from the public—usually providing an empty box for public display. Patrons wanting to check out a CD or DVD have to bring the item's case to the circulation desk staff, who then must retrieve the actual disc. This multistep process adds to the amount time staff must spend checking out and checking in CDs and DVDs, and makes it impossible for patrons to use the self-checkout systems that some libraries have instituted. Bibliotheca RFID Library Systems, a Switzerland-based maker of RFID products for libraries, has developed RFID tag technology that has the potential to streamline the way libraries manage and circulate their CD and DVD collections and protect their collections from theft.

Although composed of polycarbonate plastic, CDs and DVDs also have a metallic reflecting layer, typically made of aluminum. This metallic layer reflects radio-frequency (RF) transmissions, reducing the ability for an RFID reader to successfully read an RFID tag placed on a disc. Bibliotheca, however, has developed technology—consisting of a smart label used in conjunction with a booster label—that overcomes this problem. The company's BiblioChip Secure-it label system for CDs and DVDs was developed while working with a client (Mastics-Moriches-Shirley Community Library on Long Island, in New York) to deliver security and reading capability for their extensive CD and DVD collection. Bibliotheca, which has a growing base of library clients in Europe and North America that have successfully integrated RFID into their existing automated library systems, developed a patented booster RFID label to ensure that the tags on a library's discs will be accurately read 100 percent of the time. The booster label is so named because it boosts the rate of accurate reads from 70 percent for the standard Bibliotheca smart label placed on a CD or DVD to what Bibliotheca describes as near 100 percent.

The BiblioChip Secure-it smart label fits on the disc's clear plastic hub. About the size of a quarter, this label has an RFID consisting of a copper antenna and a computer chip. The transponder operates at 13.56 MHz and complies with the ISO 15693 standard. The new booster label amplifies the RF signal of the hub tag to near 100 percent read accuracy by means of an auxiliary RF antenna: an aluminum ring that is placed over the disc's outer edge. The booster label is a self-adhesive clear plastic overlay that covers the entire top surface of the disc. The booster label also provides the disc with as an additional layer of protection from ultraviolet light, which can cause pinhole-like deterioration of the disc surface, according to Emmett Erwin, president and CEO of Bibliotheca's U.S. subsidiary, which is based in Yardley, Pa., near Philadelphia.

The company says that tests with different CDs and DVDs and various CD-ROM drives, CD players and other devices have shown that its labels have no effect on running performance of the discs and do not cause any damage to the drives or discs. The standard CD/DVD BiblioChip Secure-it hub labels costs $.99 and the booster labels costs $1.49, but the per-label costs are lower for large bulk sales. The company offers a service to fit a customer's CD/DVD collection with the Bibliotheca labels, or the library customer can retrofit their own collection.

The tags, both the hub and the booster, are manufactured by UPM Rafsec according to Bibliotheca's specifications. "We chose Rafsec because their process incorporates copper, which is much better than aluminum for conductivity to the RFID chip; plus the overall antenna strength is better for the library environment where longevity is critical in the CD/DVD hub," Erwin explains. "We are the exclusive worldwide distributor of UPM Rafsec RFID tags for the library market."

To check out CDs and DVDs, the library patron brings the items to the circulation desk or self-checkout station, which allows a person to check out their items without involving library staff members. An RFID reader at the desk or station reads the unique serial on each smart label and automatically identifies each disc, facilitating the checkout process.

The BiblioChip smart label can also be used to prevent theft of items. Presently libraries apply electronic article surveillance (EAS) tags to items, and library circulation staff must manually deactivate the EAS tag attached to each item as the item is being checked out and then reactivate the EAS tag when the item is returned. Using the BiblioChip Secure-it RFID labels, a library can eliminate the extra steps for deactivating or reactivating the antitheft tags. The label's RFID transponder not only identifies the item, but also includes a security component that will send a signal to the security gates as it passes through unless it has been deactivated by an RFID reader when the item is checked out. If the RFID tag's security component is not turned off and someone tries to pass through the gates with the item, the security alarm goes off to alert staff that an item has not been properly deactivated or was in the midst of being stolen.

The company has several other products that use RFID to automate routine tasks tied in with collection management. In North American, Bibliotheca recently introduced its BiblioMat automatic check-in sorter for returned books. For libraries with multiple branches or dispersed facilities (i.e., a college campus with several scattered library buildings), the BiblioMat can be a time-saving and cost-efficient solution, according to the company. Patrons may deposit books at a library material return area, and the built-in RFID reader will automatically check in the items. If this check-in station is coupled with an RFID-enabled automatic book sorter, the books, CDs and DVDs will automatically drop into receptacles based on the branch information embedded in the RFID tag.

The company also unveiled its newest RFID self-checkout station, the Vienna kiosk. The self-checkout station allows a person with a stack of books, CDs or DVDs to quickly and privately check out their items without involving library staff members. Self-checkout is not a new concept for libraries, but RFID technology provides for both item management and security deactivation in one step, reducing library labor costs.

Bibliotheca foresees other applications for its CD/DVD BiblioChip labels besides those for libraries. Additional potential users of its RFID labels include CD and DVD manufacturers and retailers, which could use the labels to track and manage discs just as libraries would.

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