

An RFID-based system enables the school district to track environmental conditions in its electronics storage closets, as well as the locations of laptop computers within the school building.

By Claire Swedberg

Mar. 11, 2009—Connecticut's [New Haven Public Schools](#) (NHPS) district has installed an RFID-based system at its John C. Daniels Elementary School, in order to provide visibility of its laptops, as well as sense temperature changes in its data closets and computer lab. Auto-ID systems integrator [Queralt](#) installed the system—which includes RFID hardware and software manufactured by [RF Code](#)—in July 2008.

The school deployed 1,500 active 433 MHz RFID tags, complying with the ISO 18000-7 standard, on its desktop and laptop computers for tracking. It also deployed one humidity- and three temperature-sensing tags in two data closets and a computer lab, as well as a tag that senses when the door to a laptop storage cabinet is opened. In addition, says Queralt's managing director, Michael Queralt, readers installed throughout the school help the district track assets such as computers if they are moved from one location to another.



Mitch Medford

Like many school districts, NHPS is facing difficult financial times, according to Frank Gentile, the New Haven Board of Education's director of information technology. "Educational expectations remain high," he says, "yet funds for staffing and support remain fixed or are decreasing." The district was acquiring additional computers and had insufficient staffing to track the assets manually. The school sought a system that would enable the district to maximize computer usage and availability for employees and students, as well as reduce the expense of losing laptops to theft, without increasing the man-hours that would be spent searching for the computers.

The RFID tracking system ensures that school administrators know about the movement of computers. It also allows them to conduct a quick and accurate physical inventory of the assets at any time, and to easily verify the laptops' availability for staff and student use.

Initially, Gentile says, the district researched and interviewed vendors, then selected the RF Code system because of its flexibility, overall price and ease of use.

The district was looking not only for a system with which to track the electronics, but also a way to monitor the temperatures in the data rooms so it could be alerted if a data closet experienced a surprising elevation or drop in temperature. RF Code tags containing temperature and humidity sensors are attached to laptop cabinets or walls in data closets, Queralt says, and door sensors are attached to

the cabinet doors to detect when one has been opened. RF Code interrogators, spaced approximately every 300 feet, are installed in the ceilings to provide visibility throughout the entire building.

In the data closet, if the sensors detect a temperature rising too high or dropping too low, an alert is transmitted via the RF Code software, and an e-mail message is then sent to the necessary officials. In the case of the door sensor, each time the laptop storage cabinet is opened, the tags send a notification to the reader, and that data is stored in the software. The system can be set, however, so that when the cabinet is opened outside of the appropriate time constraints—such as late at night, or on weekends—an e-mail alert is sent to the appropriate recipients.

RF Code's system is integrated into the school district's inventory-management software application, enabling the district to see the locations of items within its own management system. Each tag placed on laptops and other electronics transmits a unique ID number. The readers capture those tag ID numbers and send that information to the back-end system. Each interrogator can detect the tags in about a 10,000-square-foot area, according to Mitch Medford, RF Code's CEO.

RF Code has supplied RFID tags for approximately a decade, though it has evolved, over the past few years, from being a manufacturer of passive tags and readers to one that makes active interrogators and tags. According to Medford, the company now focuses on tracking—and monitoring the environmental conditions of—such things as high-value assets and equipment in data centers.

Companies such as [Clear Channel Communications](#) employ the system to gain visibility into the temperature and humidity conditions within data centers. Typically, Medford says, a system including software, tags and an interrogator for a data room costs approximately \$5,000.

Since the system was installed at John C. Daniels School, Gentile says, the computers have been more available to employees and students, and easier to find. "We feel that the pilot has been a great success," he states, "and we will be deploying this solution to the Cooperative Arts magnet [high school], and to the Gateway Center HQ [administrative] offices, during the next budget year. Both of these sites have high-value assets that we would like to ensure are highly available for staff and students."

After the planned installations at Cooperative Arts & Humanities High School and the headquarters building are completed, the school district intends to expand the system to other sites as well. "We plan to deploy this system to schools as budget permits and assessed need requires," Gentile says.