

**At the Calgary Stockyards, the systems provider showed that its battery-assisted passive RFID ear tags could be read on roaming animals inside a 30-by-15-foot auction ring.**

By Beth Bacheldor

Nov. 26, 2007—Santa Clara, Calif., RFID systems provider [Intellex](#) recently demonstrated its battery-assisted passive (BAP) RFID technology at the [Calgary Stockyards](#) in Canada. The demonstration, conducted in early September and announced this week at the [RFID Journal LIVE! Canada 2007](#) conference in Toronto, consists of Intellex's BAP UHF inlays, which operate at the 902-928 MHz ultrahigh-frequency (UHF) band and comply with EPCglobal's proposed Class 3 standard. The demonstration system was designed so that multiple tags could be read as the cattle entered and moved across the auction ring, a 30-foot by 15-foot area where the cattle can be viewed and auctioned.

Tracking cattle and other livestock with RFID tags is not a new practice. In fact, hundreds of thousands of animals are currently tracked using the technology. But for the most part, culling the unique ID numbers off the cattle tags has involved reading the tags individually using handheld devices because the majority of tags in use operate at low frequency (125 or 134.2 kHz) and, therefore, have a very short read range. Now, Intellex says it's come up with a solution that will enable ranchers, auctioneers and others to scan multiple tagged cattle—even when they're moving.

The Intellex inlays demonstrated at the stockyards were molded into plastic livestock RFID tags from the [Destron Fearing](#) division of [Digital Angel](#) and attached to cows' ears. The demonstration included one Intellex RFID interrogator and two pairs of RFID antennas. One pair was placed just below the stand, and other at the opposite end of the ring from the stand.

Twenty-four cattle were tagged for the demonstration. For part of the testing, the cattle were moved into the ring, and the tags were read when they settled. The demonstration also tested whether the tags could be read as the cattle were moved through the ring; according to the company, the system was able to read all the tags during each phase of the trial.

The system has the potential to help track animals from their point of origin, and as they change hands between buyers and sellers at the "speed of commerce," says Steve Smith, senior VP of worldwide sales at Intellex. Such visibility would improve traceability so that, for instance, in the event of a disease breakout, all animals that could have come into contact with an infected cow could be located.

"There can be as many as 4,000 to 6,000 cattle auctioned off every day at an auction house," Smith explains. "The cattle come in on trucks, are loaded into lanes where six to eight head of cattle across are streaming down these lanes into a [gated] area behind the auction yard. In order to read traditional RFID tags on cattle, the cattle need to be narrowed down and corralled individually to read a tag. There's no way to read six to eight head of cattle across a 16-foot lane, and you definitely can't read those cattle moving at about 8 to 12 miles per hour in a lane. You have to narrow them down to one at a time, and slow them down to get a read. That is not what you call operating at the speed of commerce.

In fact, it makes for a very long day to auction off 6,000 cattle."

The difficulty associated with using traditional RFID animal tags at such places as auction houses has stymied the technology's adoption, says David Moss, chief operating officer at [Livestock Identification Services](#) (LIS), a not-for-profit, industry-owned agency that provides inspection services to livestock producers in Alberta, Canada. "To get traceability, you need to read each and every animal, and with the low-frequency RFID that's typically used, it slows everything down," says Moss, who attended the Intellex demonstration. "When you make something hard to do, it makes it difficult for people to buy into the process. The Intellex system gives us that individual animal read, without interfering with commerce."

The demonstration provided Intellex the opportunity to present its technology; several agencies and private companies attended, including LIS and [Alberta Agriculture and Food](#). Now, Intellex is applying for research and development funding from several agencies in Canada to move the technology from proof-of-concept to production-ready status.

A recent report by British research and analysis firm [IDTechEx](#) predicts that the food market (including the tagging of farm animals and the tracking of fresh produce through the supply chain) will rank as the largest RFID market by 2017 (see [Food and Livestock Tagging Expected to See Bumper Gains](#)). The consultancy notes that Asian countries are developing methods to identify animals by means of high-frequency (HF) tags, which offer a 50 to 400 percent greater read range than LF tags.