

RFID READER

Volume 1, Issue 1

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March Events:

- RFID World Conference (Feb 27th—March 1st)
- Spring Break (March 20th—24th)
- Women in IT Conference Conference, Rogers, AR (March 10th)
- RFID Smart Labels Conference Boston, MA (March 28th)



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To request a copy of this newsletter by mail or by email contact:

rfid@walton.uark.edu

Welcome to the first monthly issue of the *RFID Reader*, published by the University of Arkansas RFID Research Center, Information Technology Research Institute in the Sam M. Walton College of Business.

Since June 2005 the University of Arkansas has been conducting testing and research using passive (non battery activated) Radio Frequency Identification (RFID) tags in its facility at Hanna's Candle Co., Fayetteville, Arkansas. The lab has the ability to run case, case pallet, and pallet testing using conveyers, portals, dock doors, and impact doors. The RFID Research Center's

laboratory provides the technology and expertise to test products for RFID compatibility, combating issues such as radio frequencies being absorbed by water and reflected by metal. The lab also provides cold storage testing at its Zero Mountain facility to insure tag readability and reliability in cold environments. The lab currently has two facilities at Zero Mountain operating at 36°F and -10°F. The sub-zero temperatures are especially problematic as LCD laptop screens tend to freeze, for example, at extremely low temperatures. The *RFID Reader* is designed to keep all interested con-

stituencies, from lab sponsors to students, up to date on what is happening in and around the lab. The newsletter provides the latest stories, new developments, upcoming events, and research opportunities. We hope you enjoy the inaugural issue!

UofA RFID Research Lab Receives EPCglobal Accreditation

The University of Arkansas RFID Research Center laboratory has passed accreditation criteria established by EPCglobal Inc., a global not-for-profit standards organization commercializing the Electronic Product Code™ (EPC) and RFID worldwide. The UA lab is one of the first EPC/RFID research laboratories worldwide to receive the EPCglobal Performance Test Center Accreditation.





Zero Mountain Cold Storage



Zero Mountain Inc. is a 4.2 million cubic-foot cold storage facility, located in Fayetteville, Arkansas. The building has been housed in an old limestone mine that has been used for frozen product storage since 1955.

The RFID Research Center lab has conducted tests on frozen products to see the potential for RFID in sub-zero conditions. The temperature challenges have been vast, but several areas of all of Zero Mountain's facilities may benefit by implementing RFID.

One of the barriers is the RFID equipment's ability to withstand the storage center's sub-zero temperatures freezing equipment such as laptop screens. The center has resolved this problem and recorded exemplary read-rates at the pallet-level testing.

The center's ability to use a facility like Zero Mountain has expanded its capabilities and has helped drive RFID research to new levels, where it continues to develop the newest techniques and insure the future of RFID benefits.

On the web: www.zeromtn.com

5000 Series Markem Printer/Applicator



The new 5000 Series Markem printer/applicator has arrived in the lab. Markem has over 90 years experience on the plant floor and is one of the companies at the forefront of conveyer tag printing and application. The 5000 series combines Markem's expertise in tag application with EPCglobal Inc. and Wal-Mart's compliance.

This printer technology enables companies to tag their products as they move down the conveyer, rather than using the slap and ship method. This increases inventory efficiency, reduces out-of stocks, reduces shrink, and has an overall increase in ROI.

We also test using printer and printer applicators from: Zebra, Printronix, Weber, Avery-Dennison, and Paxar.

Sweet-Spot Tester in Full Swing

The Avery Dennison sweet-spot tester is a new product in the RFID lab that is used for finding the "Sweet-Spot" for a tag location on a box. This benefits a business by allowing it to receive higher read rates in the Wal-Mart distribution centers and its retail stores.

The testing process involves applying a tag on the hand held antenna and then scanning the box of product. Different types of tags can be easily interchanged and the best tag type for the product can be determined.

The feedback is then output to a laptop to graphically show the hot and cold zones on a particular box. This information can then be used to fine tune tag placement and increase readability.



Does RFID Reduce Out of Stocks?



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In October 2005, the University of Arkansas released a white paper written by Bill Hardgrave and Matthew Waller, along with Ph.D. student Robert Miller, discussing the effect of RFID on out of stocks in selected Wal-Mart stores. The paper proved that RFID led to a 16 percent reduction of out-of-stock and faster shelf replenishment.

Tests were conducted in 24 Wal-Mart stores: 12 RFID enabled stores and 12 control stores. Data is generated in several points in the store using strategically placed antennae and readers at the dock door, backroom/sales floor door, and at the box crusher (indicating empty boxes).

RFID enabled stores showed out-of-stock levels improved by at least 26 percent after RFID was implemented (compared to pre-RFID), leading to a 16 percent improvement on average between RFID enabled and non-enabled stores.

This 29-week project concluded that RFID has the potential to minimize out of stocks, while increasing product turnover and visibility into the supply chain. It has provided the suppliers with a knowledgeable basis as to how they can apply RFID in the long term.

Download the white paper at:

<http://itri.uark.edu/research/display.asp?article=ITRI-WP058-1105>

Student Profile

Nabil Kawas Bolanos



The Quality Control Manager of the RFID Research Center, Nabil Kawas Bolanos, was born in Tegucigalpa, Honduras in

March 1977. He mastered the English language alongside his native Spanish language since the age of five in the American School of Tegucigalpa. In pursuit of his passion for travel and learning other cultures, he has lived in the United States, Costa Rica, and

Italy.

Nabil's skill and interest in problem solving, analysis, and computers resulted in a Bachelor's Degree in Industrial and Systems Engineering.

He then pursued two Master's degrees from the University of Arkansas: a Masters in Business Administration and a Masters in Transportation and Logistics.

Nabil began his career with British American Tobacco, managing the convenience stores channel. He then moved on to the cell phone industry where he worked for one of the most profitable Millicom operations in Central America. He moved up the company's

Management to strategic project management and managed cross country teams in Honduras, Guatemala, and El Salvador within the matrix operations of Millicom. Bolanos graduates with a Master in Transportation and Logistics in June 2006. He is self-motivated, competitive, team- and result-oriented and is an entrepreneurial product and project manager with international experience in distribution, marketing and sales. His IT skills include Siebel's CRM, AC Nielsen, SPSS, SAP R/3, SQL, and programming in C.

To see Nabil's resume, and other lab employees résumés please visit

<http://itri.uark.edu/rfid>

or email the lab at: rfid@walton.uark.edu

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