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## Automatic Identification Technology (AIT) Quarterly Edition

Brought to you by the AIT Implementation Branch

### Greetings from the Logistics Technology Integration Division

This is my first AIT Edition of the *DPO Update* as the new Chief of the Logistics Technology Integration Division. With Dave Dias' retirement in August, I have some big shoes to fill. With continued support from our excellent staff and all of you, I promise we'll continue to make significant headway in tackling the AIT issues across the enterprise.

The Navy is our lead service this quarter. In the first article, the Navy proudly announces its Passive Radio Frequency Identification (pRFID) Team's reception of the Defense Standardization Program Outstanding Achievement Award. Once again, pRFID has proven useful in significantly improving an organization's business processes. Our congratulations to the Navy.

Unlike previous editions, this quarterly contribution to the *DPO Update* does not have a spe-

cific focus article. In its place we are publishing an article the Marine Corps submitted for the previous edition, but which could not be published due to space limitations. The article outlines a successful test and implementation of pRFID at Blount Island Command. You'll be hearing more about pRFID implementation in future editions as more and more uses for this technology are discovered.

Finally, I encourage you to use our "AIT Question Corner." We'll answer questions of general interest in following editions. And, as ever, feel free to contact USTRANSCOM's AIT Implementation Branch with comments regarding the content in this *DPO Update* or with other questions regarding automatic identification technology via email: [ustcjsj4-t@ustranscom.mil](mailto:ustcjsj4-t@ustranscom.mil).

Dave Blackford  
Chief, Logistics Technology Integration Division

### DPO Update Items of Interest

- On Oct. 6, more than 300 Stryker military vehicles completed their global tour of duty from Iraq to Port Canaveral, Fla., thanks to the 832nd Transportation Battalion and SDDC. The vehicles were used to carry Department of Defense service members through Baghdad and other hot spots during Operation Iraqi Freedom.
- The initial roll-out of iDistribute is accomplishing what was intended: To identify use cases and incorporate lessons learned while identifying additional training needs. On Sept. 28, Army Brig. Gen. Michael Lally, USTRANSCOM's director of operations and plans, participated in an AT21 demonstration at the Fusion Center. He observed as operators walked through AT21 operational capabilities now available within iDistribute. In addition to noting the importance of collaborating with transportation component commands, the operators summarized the tool as "powerful, user-friendly and intuitive." To create an iDistribute account visit: <https://idistribute.ustranscom.mil>.
- An Innovation Roundtable, held Oct. 5-7, was co-hosted by USTRANSCOM and the Defense Advanced Research Projects Agency. It brought together the best and brightest in government, industry and academia to explore the "Art of the Impossible" regarding the next generation problem statement for USTRANSCOM.

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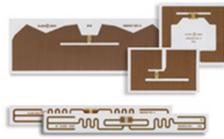
To submit an article, announcement or topic, email [Christine Pesout](mailto:Christine.Pesout@ustranscom.mil), *DPO Update* Editor.

## Navy AIT Program Office Wins Outstanding Achievement Award

Patricia Blakney, Navy AIT PMO, COPA/TA, [pat.blakney@navy.mil](mailto:pat.blakney@navy.mil)

The Naval Supply System Command's (NAVSUP) Navy Automatic Identification Technology (AIT) Program Office Passive Radio Frequency Identification (pRFID) Team was awarded the 2009 Defense Standardization Program (DSP) Outstanding Achievement Award on July 9 at the Pentagon for its exceptional work on the pRFID Implementation Program. Team members include Lorrey Bentzel, Bob Bacon, Gary Bruner, Helen Wonders, Pat Blakney and Jerry Zamer. The purpose of the ongoing project is to improve asset visibility of Department of Defense (DOD)-owned assets through the global supply chain.

Each year, the Defense Standardization Program Office honors individuals and organizations of the military departments and Defense agencies that achieve significant improvements in interoperability, cost reduction, quality and reliability. The mission of DSP is to identify, influence, develop, manage and provide access to standardization processes, products and services for warfighters and the acquisition and logistics communities.



*Passive RFID tags are thin enough to be included within a military shipping label, permitting easy tagging of DOD cargo*

The NAVSUP pRFID Team's accomplishments leading to this award included the implementation of pRFID technology at selected indi-

vidual sites in the Navy's supply chain, enabling users to do their jobs more efficiently, thus improving operational readiness. The real-time visibility of assets will save money and will provide a significant return on investment, through the prevention of reordering, misplacing or misdirecting needed materials.

Passive RFID uses wireless scanners to immediately scan and track material tagged with industry-standard shipping labels containing an embedded pRFID tag. These tags are read at receiving activities and the tag numbers are matched with the corresponding transactions to acknowledge the arrival of the material through a dock or main door at the receiving site. Electronics stores, such as Best Buy, use this technology to detect and deter theft as shoppers pass through the store exits. FedEx uses pRFID to track packages as they enter and leave key points along the transportation chain.

DOD-wide asset inventory exceeds \$80 billion. There is a need to improve the visibility of the \$8 billion of in-transit material goods as they are processed through the global supply chain. DOD's use of pRFID to meet this need is expected to pay dividends in terms of reduced manpower and improved asset visibility.



*Passive RFID reader at the doorway of Bldg 167, Naval Supply Yard, Pearl Harbor*

## Passive RFID — Beyond Material Release Order, Case and Pallet-Level Tagging

Lyle Layher, Head, MPS Plans Management Branch, HQ USMC, [lyle.layher@usmc.mil](mailto:lyle.layher@usmc.mil)

In the DOD Automatic Identification Technology Concept of Operations for Supply and Distribution Operations dated June 11, 2007, passive RFID (pRFID) was noted to be limited in read range and data capacity. Since that time, the maturation of the technology has produced commercially available tags having reliable read ranges that exceed 100 feet. Moreover, extended data capacity has been incorporated into pRFID computer chips.

As part of Marine Corps Logistics Command's efforts to continually improve asset visibility and equipment accountability, Blount Island Command (BIC) conducted operational range testing on more than 30 different commercially available pRFID tags. The candidate tags were selected for specific material types with an emphasis on use on metal surfaces. The tag's range performance data were collected on more than 500 military equipment

applications. BIC compiled a candidate list of passive tags that depicted each one's intended surface material, durability, memory capacity and size. Vendors supplied sample tags for performance testing.

BIC developed Integrating Placement and Registration of Identified Materials and Equipment (iPRIME) software to facilitate the requirements of pRFID testing, tag placement and equipment tracking. iPRIME methodically captures the read range performance (i.e. read count) of a candidate tag at predefined distances, attenuation levels and angles to the pRFID reader. The software auto-generated test cases for a given tag at each of the parameters mentioned. In addition, the software captured a photograph of each test instance from the reader's perspective.

— continued

Variables used for tag selection included maximum read range, durability, estimated cost, extended memory capacity, footprint and tag availability. The maximum read range was heavily weighted for the selection. The tag selected for marking vehicles and International Organization for Standardization (ISO) containers was the OmniID MaxHD\* (Figure 1).



Figure 1. The OmniID MaxHD pRFID

Once the pRFID tag was selected, BIC tested tag placement on more than 250 vehicles and ISO containers. BIC's Systems Integration and Training Facility (SITF) provided the infrastructure to characterize and capture the passive tag read range reliability. Six pRFID portals were set up to form three chokepoints. The distances between readers at the sides of each chokepoint were 15 ft., 30 ft., and 45 ft., respectively. The 45-ft. distance represented the widest cargo bay door that is used at the facility. Tags were placed at three candidate locations on the sides of the equipment and the equipment passed through the centerline of the portal chokepoints. iPRIME was developed to interface with each of the portal readers and collect the number of tag reads at each location.

Concurrently, BIC had received a DOD directive to begin placing Item Unique Identification (IUID) marks on legacy prepositioning military equipment. Given the requirement to assign and apply IUID marks to equipment, BIC determined that it would be cost effective to synergize the IUID marking with the application of pRFID tags. Specifically, it was decided that the passive tag would also contain the item's unique item identifier (UII) placed in the passive tag's extended memory area. One of each type of prepositioning equipment was cycled through this test fixture in order to select the optimal tag location. The test procedure included capturing and collecting digital photographs for the placement of IUID labels. The culmination of this effort resulted in the publishing of an iPRIME on-line *IUID/pRFID Tag Placement Guide*. The guide provides detailed photographs and text instructions of proper IUID and pRFID tag placement for each item (Figure 2).

To measure the passive technology's ability to meet the operational need, an RFID infrastructure was established to enable the tracking of vehicles and containers being loaded to a Maritime Prepositioning Ship (MPS). Unmanned chokepoints were configured at the port to capture the tagged equipment being loaded. The loading of equipment onto the USNS PLESS served as the initial means to gather and evaluate pRFID performance data. iPRIME demonstrated an initial 94% success rate while

correctly and completely identifying the tagged items being loaded aboard USNS PLESS. This initial test produced a 20% improvement over previous methods using manually captured AIT information.

Development of off-the-shelf technology alternatives such as pRFID promises to increase business process efficiency, improve data quality and increase asset visibility throughout the MPS maintenance cycle. Blount Island has demonstrated the application of pRFID technology to consolidation layers 4 (air pallets and sea vans) and 5 (transportation conveyances) as highly effective and efficient for meeting the needs of their business processes.



Figure 2. This example from the iPRIME on-line *IUID/pRFID Tag Placement Guide* shows proper placement for a pRFID tag on a Marine vehicle.

*\*This article reports results of a test done in unique circumstances. It does not constitute an official endorsement of this company or this product by the U.S. Marine Corps, the U.S. Transportation Command or the Department of Defense.*

## AIT Question Corner

### You Have Questions?

Send questions for the next edition to: <mailto:ustcjsj4-T@ustranscom.mil>.

## AIT Quarterly Edition #7: Preview

The seventh AIT Quarterly Edition of the *DPO Update* will be published in January 2011. The deadline for submitting articles is Dec. 16, 2010. The focus article will feature sensor technology. The lead Service/Agency will be the U.S. Air Force. We encourage short updates from other services, agencies or government organizations.

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