

Welcome to the January 22, 2007 issue of Theory and Practice. We publish every two weeks, examining recent events and offering opinions on key trends in manufacturing, wholesale, and retail processes. Please feel free to forward this newsletter to colleagues or others who might find it relevant.

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Take Appropriate Precautions When Implementing RFID

Bob Parker, Scott Lundstrom

Everything from wireless networks to cell phones to electric shavers has been subjected to media hand wringing about potential dangers from exposure. These stories have generally overstated the risk, but certainly when there is excessive exposure to electro-magnetic fields (EMF) there could be a health risk concern. The key factors are the amount of energy, the proximity to the source, the length of exposure and the frequency. RFID devices, like the aforementioned consumer products, are deemed safe under recommended implementation approaches, but buyers should take appropriate precautions.

EPC Global, specifically the Health and Science Public Policy Committee, has looked at an exhaustive body of research related to EMF exposure aggregated by the World Health Organization (WHO), the International Commission on Non Ionizing Radiation Protection (ICNIRP) and others. The general conclusion that can be drawn is, with the current scientific understanding, that exposures below the recommended levels pose no health risk. As to RFID specifically, an occupational EMF audit conducted in Australia looked at various warehouse implementation scenarios and demonstrated that when the proximity was near contact (< 1 cm), the exposure was between 45 and 75% of the recommended limit. At 20 cm, that percentage drops to a range of 2 to 25% and then drops precipitously to between 1 and 8% at 40 cm (nearly 16 inches). Some reader manufacturers include advisories in their packaging to keep antennae 22 cm from employees and the public.

There is a large body of work in this area that has been reviewed by the scientific community, regulatory agencies, and other interested parties. The general conclusion that can be drawn is that there is no evidence that suggests a health risk. However, there needs to be more study that looks more specifically at RFID technology in typical occupational and public deployments. What concerns us is the possibility that some implementations take measures to improve efficacy. Utilizing higher power levels, continuous power for readers in close proximity, and increasing the density of readers are all techniques for improving performance and there isn't enough data on how this impacts exposure levels.

Many of the existing studies were relative to the effects of mobile phones which are usually in closer proximity to the user than RFID readers, but have lower power and shorter exposure times. A large amount of research was underwritten by Motorola and, despite an obvious vested interest in demonstrating that mobile phones are safe, the work has been vetted and is generally respected by the larger scientific community. Motorola continues to support research on the biological and health effects of RF exposure through the Mobile Manufacturers Forum (www.mmfa.org). Again, what is needed is more study on specific RFID device implementation scenarios.

Essential Guidance:

Reader manufacturers and the implementing businesses must be diligent and pre-emptive as they have the liability should a hazard become known. The analysis of EMF exposure limits is extremely complex and depends on a large range of variables. Therefore we provide some essential guidance for companies using RF equipment. Until there is more study, we recommend the following:

- When selecting readers for an implementation, make sure the vendor can verify compliance with accepted standards. Similarly, installation service providers should have experience with RF and understand how to minimize exposure. If you want an added level of protection, request that your vendors indemnify you from any future health claims resulting from the use of the technology.
- Stay informed of the guidance offered by regulatory and standards bodies such as the ITU, WHO, IEEE, OSHA, and ICNIRP. Educate your employees on safe practices and reinforce this training with signage. If implementing in a public space, companies should pay particular attention to the limits in national regulations and international recommended guidelines, which differ from the limits in occupational spaces.
- Take specific readings of EMF levels after initial installation and when equipment is added or replaced to assure compliance with standards. Perform regular audits to verify continued compliance and make sure that the hardware is properly maintained.
- Balance the need for read efficacy with exposure levels. Use lower power levels if possible. Shut down antennae when not in use and activate with motion sensors as an alternative to always on operation. Work around issues with dead spots rather than simply increasing the density of the readers.

There is no reason to scrap or stall RFID implementation projects. Taking appropriate measures, however, will mitigate risk and will preemptively address any fears that may be raised by employees or consumers. For further reference, EPC Global maintains a list of best practices that can be found at <http://www.epcglobalinc.org/public/bestpractice/>.

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Noteworthy

- 4CS, a provider of service part software applications, announced that its iParts software is to be used by Vermeer Manufacturing Company to help manage service part processes. Vermeer Manufacturing Company is an agricultural, construction, environmental and industrial equipment manufacturer. Established in 1948, Vermeer corporate offices and manufacturing facilities are located in Pella, Iowa and they have dealerships located worldwide.
- CoCreate Software, a provider of PLM software applications for high-tech electronics and machinery, introduced a free 3D CAD software, CoCreate OneSpace Modeling Personal Edition (PE). OneSpace Modeling PE is a freely available download offering all the features of CoCreate's enterprise OneSpace Modeling 3D CAD system for assemblies up to 60 parts.
- TIBCO Software announced that The Carphone Warehouse, an independent European retailer of mobile phones and services, has chosen TIBCO's service-oriented architecture (SOA) and business process management (BPM) products to serve as its foundation for an order management and fulfillment application.
- New Generation Computing (NGC) announced that it has formed a strategic alliance with Paxar Corporation, a provider of branding and identification products to the retail and apparel industry. NGC, a wholly owned subsidiary of American Software, provides product lifecycle management (PLM), global sourcing and ERP software for the apparel and sewn products industries. Paxar designs and manufactures tickets, tags and labels, and provides the technology -- including printers, software control systems and necessary supplies -- for retail product identification. The company also has a network of regional service centers to support factories around the world. Its customers include major retailers, branded apparel companies and contract manufacturers.

- Supplier Systems Corporation, a provider of pack verification applications, announced that Limited Brands Logistics Services, a provider of global logistics, compliance and procurement management for Limited Brands, has implemented an updated version of Supplier Systems Corporation's 856Express and PacklineExpress products to support the cross-docking of merchandise from Limited Brands vendors to its Victoria's Secret Beauty and Bath and Body Works stores.
- Cimmetry Systems, an Agile Software company, announced the immediate availability of 2D, 3D and EDA native document visualization for AutoCAD 2007 SP1, Cadence Allegro 15.7, and Mentor Expedition 2005. Native document viewing allows users within and outside of an organization to view, markup and collaborate on documents without undergoing file conversions.
- Zebra Technologies announced that it has agreed to acquire all of the shares of WhereNet Corp., a provider of active radio frequency identification (RFID) based wireless applications to track and manage enterprise assets, for \$126 million in cash. The transaction is expected to close by the end of January and is subject to WhereNet shareholder approval and expiration of the H-S-R waiting period on January 13, 2007. Zebra has voting agreements from WhereNet shareholders representing more than 85% of the voting stock to vote in favor of the transaction.
- Zebra Technologies announced that Auto-Star Compusystems has certified the Zebra LP 2844-Z and S4M thermal bar code printers for deployment in the company's Star-Plus software application. Auto-Star's point of sale (POS) and retail management application suite is designed to meet the information needs of small to midsize pharmacies, grocery stores and general retail outlets. The Zebra QL 320 Mobile printer is already certified for use in the Star-Plus system.
- ClickSoftware, a provider of workforce and service management software, announced that a significant milestone had been reached at one of its largest customers. T-Com, a division of Deutsche Telekom AG, has deployed ClickSoftware's scheduling product to over 26,000 field technicians across Germany. These technicians are responsible for a wide spectrum of field activity ranging from short term, residential break/fix and installations to longer term, complex projects around network and infrastructure maintenance.
- Retailix, a provider of software for food retailers and distributors, announced that Lowes Foods Stores, a subsidiary of Alex Lee Inc., will be implementing Retailix DemandAnalytX (DAX), a demand forecasting and order optimization application. Lowes Foods operates over 100 grocery stores in North Carolina, South Carolina, and Virginia.
- Alibaba Group, the largest e-commerce company in China, announced the launch of Alisoft, an online business software provider to be established as a new company serving small and medium sized enterprises (SMEs) in China. Alisoft, developed out of Alibaba.com's e-commerce software center will initially target the 18 million SME users of Alibaba.com's services.
- Edge Dynamics, a provider of channel management applications, announced that Edge Connector 2.0 has achieved "Certified for SAP NetWeaver" status from SAP AG. Edge Dynamics' application augments SAP order-to-cash processes by evaluating each transaction against channel business policies. The policy-based channel management product offers bi-directional integration to detect deviations from channel business policies and take corrective action when deployed with a customer's implementation of the SAP software.
- Vinimaya, a provider supplier management applications for e-procurement, announced that Alcoa, the world's leading producer and manager of primary aluminum, fabricated aluminum and alumina facilities, has become a Vinimaya client. Alcoa is using ViniSyndicate to improve their supplier enablement capabilities and e-catalog usability to complement their worldwide Oracle iProcurement implementation, and has deployed ViniSyndicate to users in North America, South America and Australia.

- Tyco Fire & Security announced its acquisition of Retail Expert, a retail data analytics firm based in Boston, for \$14 million. The acquisition of Retail Expert broadens the company's existing retail loss prevention and management offerings, which are sold by ADT Security Services and Tyco business partners. Retail Expert is a privately owned company offering software and services to retailers to improve operational performance by collecting and analyzing data that can help limit losses and improve overall efficiency. The company's software products in the areas of loss prevention, vendor management, refund management, pharmacy inventory and shortage, case management and inventory control will expand ADT's existing retail offerings that consist of loss prevention and security technologies including Sensormatic electronic article surveillance and ADT intrusion and life safety products.
- Communication Intelligence Corporation, a supplier of electronic signature products, announced that it has completed a licensing agreement with Oracle for CIC's SignatureOne biometric and electronic signature products for Oracle's Siebel Handheld for Pharma and Siebel Handheld for Service products. CIC's products provide financial institutions and their application providers the ability to streamline signature based business processes and to meet legal, compliance and non-repudiation challenges.
- Logility, a supplier of supply chain software, announced that The Bon-Ton Stores has selected Logility Voyager to manage inventory, create forecasts and increase demand visibility across its enterprise of 282 department stores. Bon-Ton hopes to be able to more efficiently plan and manage inventory for new product introductions, product seasonality factors and promotional activities.
- Pay By Touch, a supplier of biometric authentication, personalized marketing and payment applications, announced the general availability of its SmartShop service. SmartShop combines Pay By Touch's biometric technologies with its marketing services to provide personalized marketing products for retail environments. The application gives shoppers customized offers on the products they buy most when they enter the store.
- Knovel Corporation, a provider of Web-based research and information services, announced a new partnership with The Air & Waste Management Association (A&WMA). Under the agreement, A&WMA will launch an electronic library (e-Library) which will provide members with access to industry-related interactive references. Using the Knovel publishing application, this new service gives A&WMA members online use of full-text versions of 35 relevant reference books. The new e- Library will provide over 9000 professionals the most current information on topics such as Environmental Health and Safety, Recycling, and Air Quality Management.
- SAP introduced the next version of its SAP All-in-One products, with enhancements intended to provide midsize companies with greater capability in managing their businesses. Using the mySAP ERP 2005 as a foundation, the products have an enhanced user interface, business scenarios, improved analytical reporting and integrated management of customer relationships. With the announcement, SAP also introduced programs and tools for its worldwide network of channel partners to address additional industry segments.
- SAP announced that ESPRIT, an international lifestyle brand, has selected mySAP ERP as the application to run the company's global retail and wholesale operations. ESPRIT has selected SAP with an objective to increase effectiveness and efficiency of its processes as well as to increase sales and support international growth. The agreement includes SAP for Retail products and the SAP Apparel and Footwear application. SAP also announced that Ace Hardware Corporation, a large hardware cooperative, has selected mySAP ERP and the SAP for Retail products to enable order management efficiencies and drive profitability.
- Balance Innovations has introduced vbForecast, a cash management software application that helps retailers manage profitability by monitoring and forecasting cash demands. Designed for retail use

and integrated into Balance Innovation's proprietary cash office management software, VeriBalance, vbForecast uses historical data to predict cash demand by denomination, allowing retailers to accurately determine proper cash needs for store and corporate use. By using vbForecast, retailers avoid incurring unnecessary bank and courier fees and can reduce a retailer's cash-on-hand by 30-45 percent. The product also offers corporate reporting and controls, ensuring that decision makers have access to the information they need regarding their company's cash position and requirements on a daily basis.

- Oracle announced the availability of Oracle Retail Returns Management, an application that allows retail organizations to address the rapidly-growing problem of fraudulent returns. Oracle Retail Returns Management enables retailers to process returns across all stores and channels through return authorizations that screen for returns fraud by analyzing return behavior and identifying specific return patterns. According to a 2006 study by the National Retail Federation, return fraud currently costs retailers \$9.6 billion a year. Criminals commonly take advantage of companies' return policies to receive cash for stolen merchandise, launder money or return an item after it has been used. However, retailers are often times reluctant to adopt more stringent return policies for fear of alienating loyal shoppers.
- Famous Footwear, a shoe retailer, has installed the latest release of Oracle Retail Price Optimization to better manage pricing across its retail stores in North America. Oracle Retail Price Optimization analyzes sales and inventory data and recommends markdowns that help Famous Footwear keep inventory moving through its stores while improving margins. Also, The Beer Store, operating more than 440 stores throughout Ontario, has implemented the Oracle Retail Store Inventory Management application with the goal to increase sales and provide a quicker, more satisfying experience for customers.
- Arrow Global Components, a business unit of Arrow Electronics, announced the worldwide release of Arrow CARES, an inventory, auto-replenishment system, developed in partnership with enterprise application and network provider One Network Enterprises. Arrow CARES is a Web-based system that accommodates eight languages-English, Korean, Simplified Chinese, Traditional Chinese, French, German, Spanish, Italian-and more than 170 currencies.
- Cognos, a provider of business intelligence and performance management products, announced it has acquired privately held Celequest Corporation, a provider of operational business intelligence products based in Redwood City, California. The acquisition closed on January 16. Financial terms were not disclosed. Celequest offers a dashboarding application as an appliance or via a Software as a Service (SaaS) model. Powered by an in-memory streaming technology, users can monitor real-time feeds from transactional systems. Celequest is certified on AppExchange and can monitor Salesforce data in a hosted environment.
- WorkForce Software, a supplier of workforce management software, announced the release of EmpCenter Advanced Scheduler, a schedule optimization module intended to help employers reduce overtime costs while offering employees more flexibility. WorkForce's EmpCenter includes Time and Attendance, Activity-based Costing, Multiple Assignment Management, Accruals and Absence Management, FMLA Management and Reporting.
- Cognizant, a provider of IT services, announced that it has signed an IT applications outsourcing agreement with Kimberly-Clark Corporation covering an array of SAP and customized software applications, including strategic planning, product management, supply chain planning and execution, sourcing, sales and marketing, data exchange and compliance, enterprise management and customer management. The agreement has an initial term of five years with additional one-year extension options. Other terms of the agreement were not disclosed.

- Workbrain, a provider of workforce management software, announced the launch of Budget Creation and Management, the latest version of its Workforce Planning application. Built for retailers, the product is designed to optimize the allocation of labor expenses by uniting fiscal and operational budget planning processes. The application provides a top-down and bottom-up approach to labor budgeting to help align store execution with corporate goals.
- HP has formed a Business Information Optimization unit within its HP Software organization to help companies make better decisions and manage their business-critical information throughout its lifecycle. The new unit will be composed of two groups – business intelligence and information management – and will include software from across the company. The business intelligence group will oversee HP Neoview, a data warehouse based on industry-standard technology. HP Neoview began shipping to select customers in October 2006 and plays a central role in HP's own internal IT transformation. This group will be aided by HP's recent acquisition of Knightsbridge Solutions Holdings, completed on Jan. 7, which advanced HP's ability to deliver business intelligence and data warehouse services. Business intelligence software, including data warehousing, enables companies to make more informed decisions to drive growth.
- First Data Corp., Microsoft and HP announced they have brought together their payment products, store management software programs and computer hardware in a small business point of sale bundle. The First Data POS Value Exchange replaces a cash register and traditional point of sale terminal with a computer-based system that delivers a store management application with information security, and more payment options for customers. POS Value Exchange leverages the three companies' product strengths: 1) First Data's payment processing 2) Microsoft Dynamics - Point of Sale 2.0 software and 3) retail-specific point of sale hardware from HP. The bundle will be offered by First Data, along with its participating alliance partners and independent sales organizations. Purchase and lease options will be available, with pricing set by the individual sales channels.
- Microsoft and Teradata announced they are working together to optimize interoperability between Microsoft business intelligence products and the Teradata Enterprise Data Warehouse to streamline the delivery of business intelligence applications and help information workers gain access to, analyze and report on critical data. As part of this effort, Microsoft and Teradata are collaborating to enhance interoperability between the Teradata Enterprise Data Warehouse and Microsoft SQL Server Analysis Services, targeting availability of the technologies for the end of the first quarter of 2007. In addition, interoperability collaboration efforts with Teradata will include SQL Server 2005 Reporting Services; SQL Server 2005 Integration Services; and the 2007 Microsoft Office system including Microsoft Office Excel 2007, Windows SharePoint Services and Microsoft Office PerformancePoint Server 2007. The worldwide relationship includes plans for joint sales and marketing activities across multiple industries, beginning with the retail sector.
- SGI and Microsoft announced that SGI will offer Microsoft Windows Compute Cluster Server 2003 on SGI Altix XE cluster systems based on quad-core and dual-core Intel Xeon processors. SGI Altix XE cluster systems with Windows Compute Cluster Server will be available beginning in March 2007.
- Microsoft announced that it is previewing the next major release of Microsoft Dynamics CRM -- code-named "Titan" -- with a broad range of partners through the company's Technology Adoption Program (TAP). The new version introduces a multi-tenant architecture, and uses a single code base to support on-premise deployments as well as software-as-a-service (SaaS) deployments through hosting partners and through the upcoming Microsoft Dynamics Live CRM service. It also uses a single code base to support on-premise deployments as well as software-as-a-service (SaaS) deployments through hosting partners and the upcoming Microsoft Dynamics Live CRM service. The "Titan" release is an evolution of the Microsoft Dynamics CRM 3.0 product, and will offer an upgrade path for existing on-premise and SaaS customers.

- Honda Italia Industriale, the Italian subsidiary of the Honda Motor Co, announced that it has signed a contract with IBM to implement RFID technology and infrastructure to transform the production processes at its plant located in Atessa, Italy. The agreement is intended to help Honda Italy to achieve higher levels of efficiency and accuracy in managing its large motorcycle and scooter production in Italy. IBM Global Business Services will support Honda Italy in the design and development of the RFID implementation, which will enable the real time, automatic identification of each vehicle along the entire production chain. The RFID tags will also be used on micro-lots of critical components, such as engines.
- ECCO Sko A/S, a shoemaker, and IBM announced a 5-year services agreement for IBM to support the company's existing SAP R/3 environment and the implementation of an upgrade with several new modules that is intended to enable the company to continue its aggressive growth and global expansion strategy. The contract has a potential value of more than \$12M. As a leading brand manufacturer, ECCO has tanneries, shoe factories, selling companies and more than 500 owned or franchised shops in 60 countries. The shoemaker has decided to implement a more updated version of SAP with several new modules including customer relationship management, supply chain management and supplier relationship management. IBM Global Business Services consultants will implement and manage the new modules, while also supporting ECCO's current SAP installation.

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