出國報告(出國類別：其他)

參與 RFID Journal LIVE! 2008 Europe 研討會暨展示會心得報告

服務機關：中山科學研究院電子系統研究所
姓名職稱：聘用技士陳純政
派赴國家：捷克
報告日期：97.11.18
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行政院及所屬各機關出國報告提要

出國報告名稱：RFID Journal LIVE! 2008 Europe 研討會暨展示會心得報告

頁數67　含附件：■是□否

出國計畫主辦機關/聯絡人/電話

RFID Journal/Mark Roberti/(817)277-7187

出國人員姓名/服務機關/單位/職稱/電話

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內容摘要：

RFID即“Radio Frequency Identification”縮寫，中文稱爲「無線射頻辨識」，係非接觸式自動識別技術的一種。原本是屬軍事用途，被用來分辨友機與敵機的無線射頻辨識（Radio Frequency Identification；RFID）技術，近年來開始被廣泛應用於商業用途上。本次會議是由RFID Journal所主導的第四屆RFID Journal LIVE! 2008 Europe年會暨展示會議，會議吸引了許多歐洲RFID硬體，軟體，和與服務業相關的領先國際RFID供應商大廠，這些供應商在過去 12 個月已經快速發展出可實際應用的方案。本心得報告記錄了這些國際大廠他們最新的RFID技術與電子產品碼(Electronic Product Code，EPC)標準，和已成功應用RFID於企業的範例，與他們成功或失敗的經驗。這些寶貴的經驗將可提供我們未來研發瓶頸的解決方式，提升產品之競爭力，檢視研究方向與產業結合度，進而得到更多商機。

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RFID Journal LIVE! 2008 Europe 研討會暨展示會心得報告

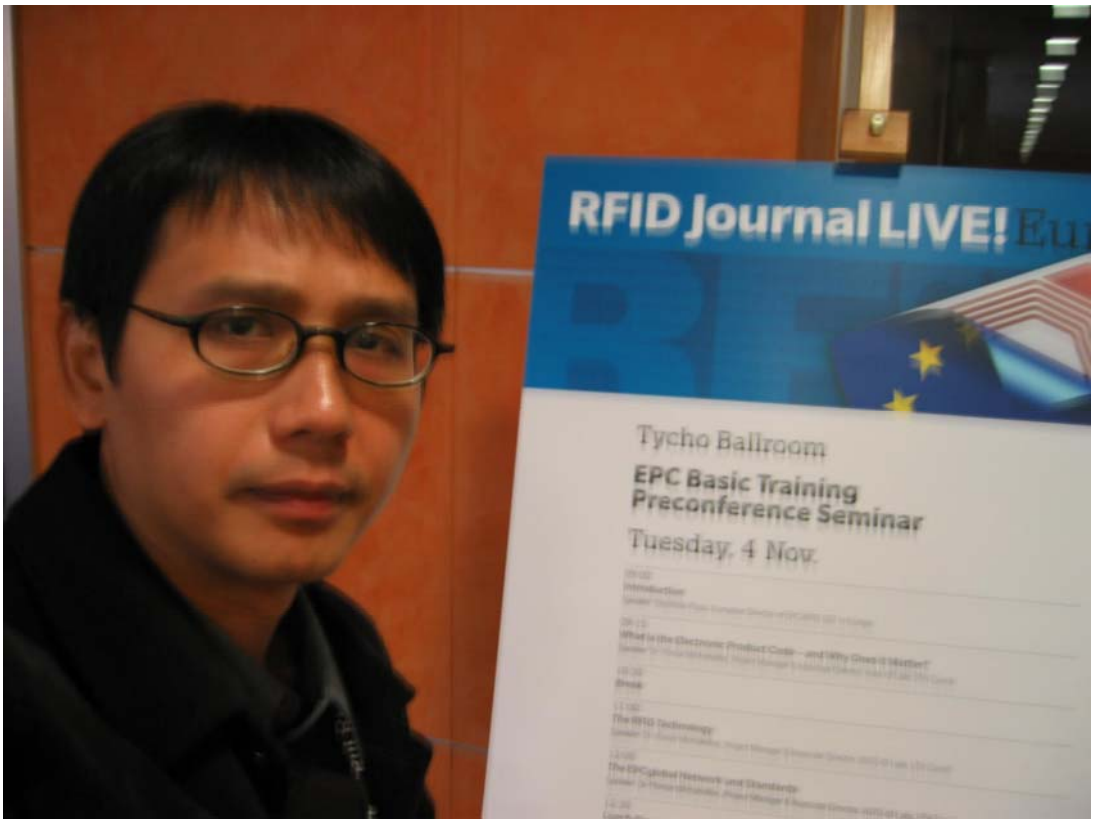
壹、 目的

RFID即“Radio Frequency Identification”縮寫，中文稱爲「無線射頻辨識」，係非接觸式自動識別技術的一種。原本是屬軍事用途，被用來分辨友機與敵機的無線射頻辨識(Radio Frequency Identification；RFID）技術，近年來開始被廣泛應用於商業用途上。1999 年美國麻省理工學院（MIT）成立自動化身分識別實驗室（Auto ID Center），積極研發RFID技術，2002 年RFID技術取得ISO18000 認證，在 2004 年由零售業龍頭沃爾瑪(Wal-mart)及美國國防部的強力推動下，於 2005/1/1 陸續實際導入，市場熱度直竄，並在全球引起廣泛討論，RFID乃成爲本世紀最熱門的科技項目之一，所以世界各國無不全力發展，過去 5 年中，即有 4,000 多種關於RFID技術的專利申請。不過，由於初期面臨標籤成本挑戰，再加上標籤讀取率不高，短期內又無法以整體解決方案模式展現效益而打動客戶，因此要談全面普及，恐怕還有一段距離。故此次參加這個RFID Journal LIVE! 2008 Europe研討會暨展示會，目的在與參展之國際大廠討論並蒐集RFID與短距通訊結合技術、應用的市場資訊等，以提供本計畫產品定位及進入市場之區隔參考，並了解RFID標準發展趨勢及國外關鍵組件設計架構，並將之實現於產品發展上。

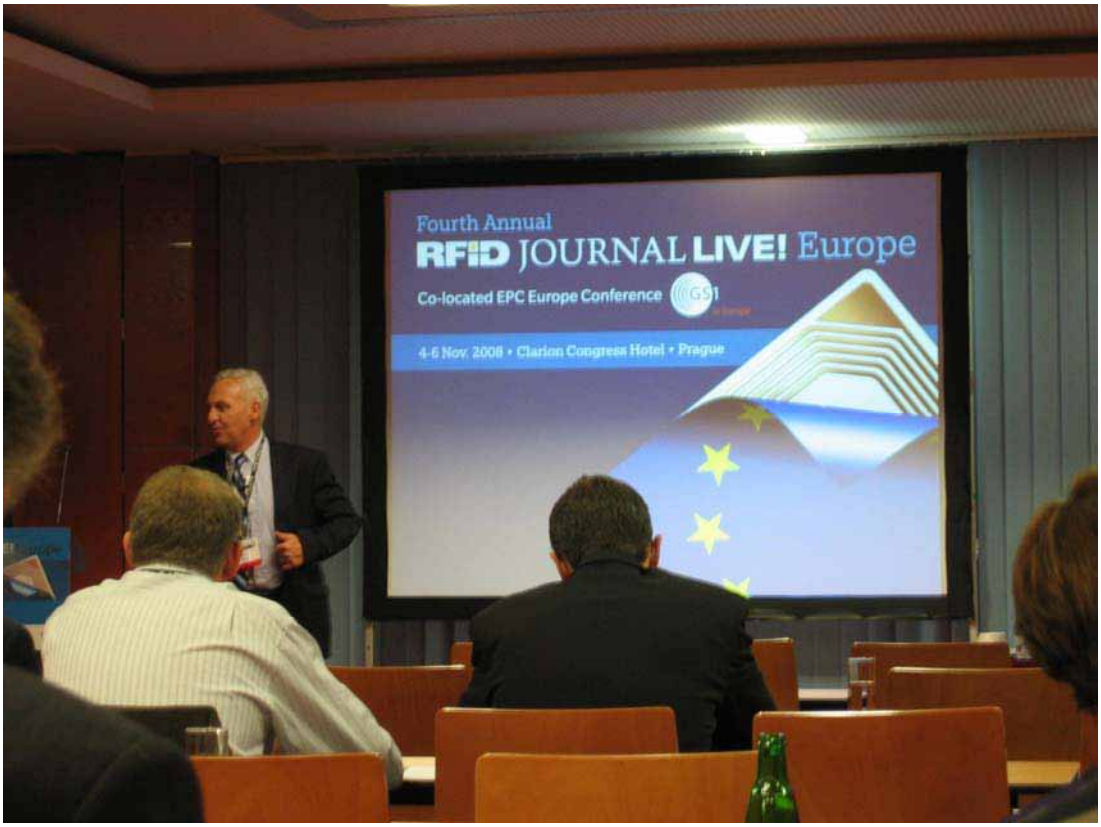
貳、 過程

本國際會議由RFID Journal所主導，於捷克，布拉格市中心Clarion Congress Hotel Prague舉辦的第四屆RFID Journal LIVE! 2008 Europe研討會暨展示會。會議吸引了許多歐洲RFID硬體，軟體，和與服務業相關的領先國際RFID供應商大廠，這些供應商在過去 12 個月已經快速發展出可實際應用的方案。會議內容爲邀請這些國際大廠發表他們最新的RFID技術與電子產品碼(Electronic Product Code，EPC)標準，和已成功應用RFID於企業的範例，並分享他們成功或失敗的經驗。這些寶貴的經驗將可提供我們未來研發瓶頸的解決方式，提升產品之競爭力，檢視研究方向與產業結合度，進而得到更多商機。

Clarion Congress Hotel Prague 飯店【圖 1】



會議報到處【圖 2】



個別研討會會場【圖 3】

一般研討會會場【圖 4】

展示會會場【圖 5】

展示會會場【圖 6】

11 月 4 日早上先到 RFID Journal LIVE! 2008 Europe 會場辦理報到後，便直接到個別研討會會場聽取由 EPC/RFID 在歐洲區的主管 Stephane Poque 和 Florian Michahelles 博士介紹 EPC 基本的訓練課程(Basics of EPC Training)，汲取其重點如下:

1. EPC 是什麼?—EPC 是“Electronic Product Code”的縮寫，中文稱爲「電子產品碼」。是一組辨識碼，用來辨識所附屬於的產品或物件，使用於 RFID 技術上。
2. EPC 有什麼功能?—EPC 可以使公司在現有的資料技術系統上，加入更多的產品資訊。新一代的 EPC 標準在可被獲得的資訊上比傳統的辨識碼-如全球交易品項識別碼(Global Trade Item Number，GTIN)和全球位置碼(Global Location Number，GLN)更爲強大，並可以使在供應鏈上的產品更具可視性。
3. RFID 是什麼?—RFID 是無線射頻辨識系統(Radio Frequency IDentification,RFID)的縮寫。它是一種新的技術，可以快速的得到寫在標籤上(TAG)的資訊，且可以在同一時間多個標籤被讀取。其原理爲讀取器送出資料，資料以電波型式傳導到標籤。標籤上的電路將收到的信號轉變成電流，驅動標籤上的晶片，並將標籤上的資料傳輸到讀取器。當讀取器收到標籤的信號後，便進行解碼，得到其資訊。各家 RFID 技術的變化在於其標籤(應用於不同載體，須做相對影響(如金屬對標籤的影響，液體對標籤的影響)的改變，主動與被動的差別)，讀取機的差異和資料通訊傳輸頻率的不同(LF(125KHz~134KHz); HF(13.56MHz); UHF(862 到 960MHz 和 2.45GHz))。
4. EPCglobal 網路和標準—EPCglobal 網路標準由 EPCglobal 公司所制定。EPCglobal 網路可讓目前市面上的產品其狀態會被自動監控，且被告知現在產品所在的位置。但要使供應鏈上的產品可以被監控，不只要靠 RFID 本身的技術，其相對應所應部署的 RFID 無線基礎建設和各國之間的配合，都有一定的規範。如此可使產業改善商業上處理的效率。

下午 Henri Barthel 博士繼續介紹 EPC RFID 的好處與應用，汲取其重點如下:

1. 發展 EPC RFID 在商業上的最大的好處就是改進其工作效能，並可應用在各種不同的商業模式與種類上。RFID 可以提供使用者對於產品有更深度的研究，舉凡

   (1). 資料聚合和分析。

   (2). 對一套產品發展出總合假設。

(3). 調查目前工業化的架構。

(4). 執行利潤的計算。

(5). 評估機會和尋找價值。

(6). 架構出一套執行計畫。

2. 可將其架構在已發展的傳統工具上，減少其模式變更所帶來的不便，讓公司操作的各種改進時程大爲縮短。

3. 使產品監視更爲確實與可靠。

4. 加強整體產業的整合。

緊接著由 EPCglobal 公司公共政策的總裁 Marisa Jimenez 說明現在歐洲各國對 RFID 的政策爲何?且消費者接受度爲何?因爲 RFID 成功與否最取決的因素爲消費者的態度。且各國政府支持 RFID 產業發展的政策與態度和應用於何種類型的產品上對其成功與否影響也很大。最後由 Henri Barthel 博士做總結，他指出 RFID 技術在歐洲已經發展出很多實際應用成功的例子，也爲使用的公司帶回很大的好處，各國政府都對這個產業也抱以正面的態度。發展的企業持續針對這個領域上的問題提出解決的方法。雖然還有部分問題尚待解決與一些規範的制定尚待改進，但總體看待 RFID 未來絕對可以爲廣大消費大眾所接受，讓世界的生活更爲便捷與有效率。

11 月 5 日第二天早上會議爲一般研討會，由大會主席 Mark Roberti 提出簡短的報告後，接著帶出本次研討會最大贊助商，Mojix 公司專案經理 Roelof Koopmans，發表他們公司如何將 EPC RFID 帶領到新的里程碑上。自從他們公司的 Mojix STAR 系統在 2008 年四月在 RFID journal LIVE!研討會上揭曉之後，市場上對他們公司在系統整體整合上與對區域傳輸和安全架構上的驚人表現，都表現出極大的興趣。在這次會議中，他們著重在說明 Mojix STAR 系統使用後的經驗，優點，與未來會精進的部分。我汲取了會議內容，將 Mojix STAR 系統的優點，與未來 Mojix 公司要突破的部分編寫如下:

Mojix STAR 系統優點爲:

1. 標籤的辨識，定位與追蹤--他們在標籤的辨識，定位與追蹤上加強晶片數位信號處理的技術，包括標籤所能容納的資訊長度，被貼標籤物品的定位(X 軸和 Y 軸)，在時空(spacetime)下被追蹤物的歷史軌跡與資訊。

2．減少因多路徑(multi-path)，相互干擾(interference)，與多且雜的頻率環境所帶來的資料讀取與多標籤判別失誤。

3．利用各種 EPC Gen2 標籤來解決不同有價產品使用上會遇到的問題。

Mojix 公司的 STAR 系統【圖 7】

未來 Mojix STAR 系統要突破的地方:

1．發展出可加在各種產品上的標籤—如內嵌在包裝上或外表不平整之物品上。

2． 直接把標籤設計到產品上。

3．加強探測器(sensor)的能力，如熱，壓力，化學，電磁，有毒物質，和其它現象的感測。

4．加強探測器能力的整合。

5．研發具傳導性，可伸縮的聚合性天線。

下午第一場個別研討會研討如何運用 RFID 策略來檢視研究方向與產業結合度，由 RFID Journal 的創辦人和主編，Mark Roberti 主講，他說越早使用新的技術越容易使公司有競爭力，且能讓投資人看到公司持續進步的願景。歐洲許多公司現在正因爲使用了 RFID 系統所帶

來的好處後，降低了商品的價格，提升顧客服務滿意度，加強執行上的效率，甚至大幅提升商品的銷售量。他們的做法爲先利用 RFID 所蒐集到的資訊得知消費者購物的行爲，利用這些行爲加強商品的可視性，再由碰觸商品與利用 RFID 來閱讀商品的特性與使用方法後，增加消費者購買的意願。

第二場個別研討會由 Arkansas 大學，RFID 實驗室的首席，Justin Patton，來講習如何使物品等級(Item-level)的商品獲利。他指出在 Arkansas 大學的 RFID 研發中心已經被委以重任來評估，將 RFID 應用在追蹤服裝，鞋子，服飾品，和各種高檔的商品所能帶來的好處，如產品的可追蹤性，產品的品質管理，與產品能視度(Visibility)。該中心已經成功的測試讀取商品標籤的穩定度，並利用商品標籤所攜帶的資料獲得利益。其中商品標籤可攜帶的資訊包含 RFID 基本命令碼，探測器命令碼，商品條碼，定位資料，與保留部分空間給想加入的資訊用。其使用物品等級 RFID 後的好處如下:

1．可快速區別各種物品。

2．自動資料存取。

3．監測物品放置的位置與狀態。

4．物品點收的控制與效率。

5．高階物品的安全。

6．硬體裝置可重覆使用。

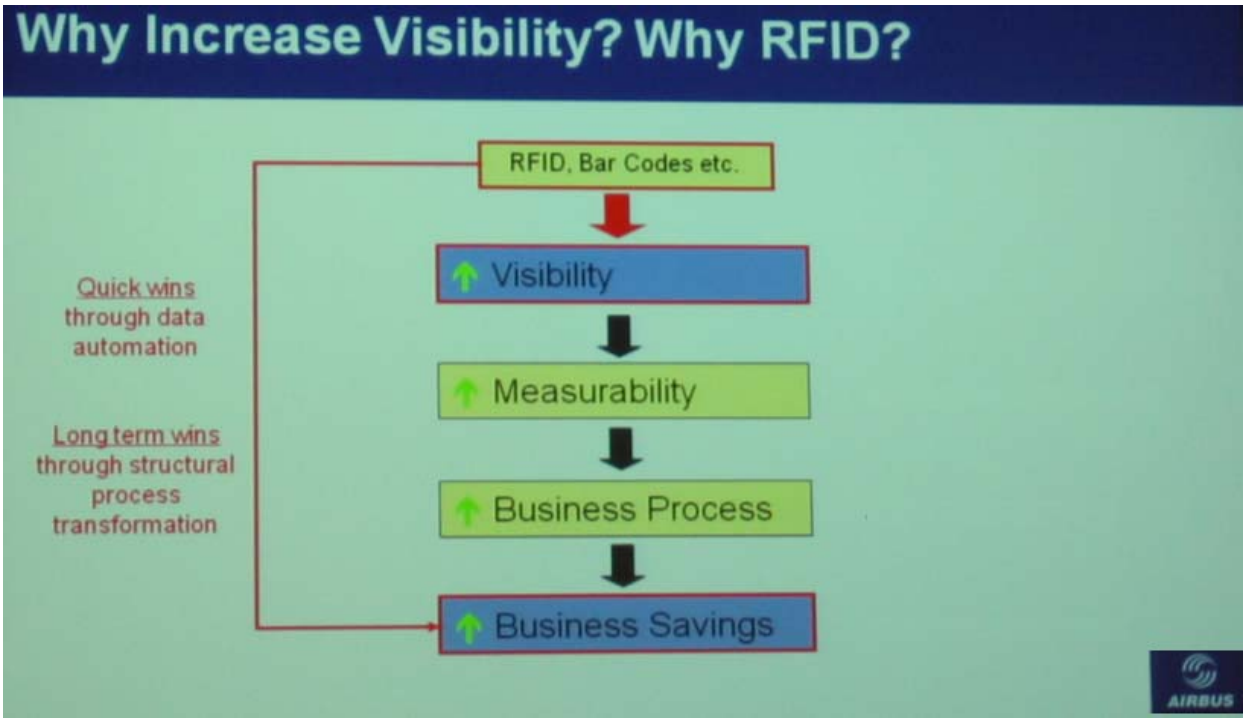
7．避免紙張的利用。

11 月 6 日早上會議爲一般研討會。第一場由 DHL 創新科技中心的分區經理，Andreas Kruse 來演說 DHL 如何在法國境內實現 RFID。DHL 每個月貼在法國國內 89 個 Metro Cash & Carry 自助批發中心的食物貨板上的標籤數量有 130 萬多個。他們在該公司的 5 個大型銷售中心裝配有 RFID 系統。這些貨板上的標籤在被送到卡車上時，會先經由讀取器將貨品資訊讀出。在貨物運送到零售中心時，貨板上的標籤又會再一次將貨品資訊讀出。資訊聚合中心會將資料收集，並和前一次在銷售中心所讀出的資料做比對，如此一來，就可以確保貨物在運送過程的安全與品質。這一場研討會讓我們知道 DHL 是如何和他的合作伙伴 Metro Cash & Carry 公司共同完成與部署整個 RFID 系統，並有一段影片說明他們在使用此套系統後，使點收資料變的容易，使管理者更清楚整個貨板運送的流程，並避免商品不必要的延遲。其中貨物接收可

提升百分之九十的人員工作效率。包裝效率提升百分之七十五，錯誤率降低百分之三十。

DHL 與其合作伙伴使用 RFID 後提升的工作效率【圖 8】

第二場由 Airbus 資源規劃專案管理者，Paul-Antoine Calandreau 博士講述如何帶領 RFID 到另一境界--Airbus 公司已經聰明地讓自己進入到 RFID 的世界裡。首先他陳述在過去一年 Airbus 進入到 RFID 的進程與實現的技術，部署 RFID 去幫助商業經營更爲流暢，降低和各合作廠商的商業作業費用。但爲何要使用 RFID 呢?他提到一套方法，先利用 RFID 來收集相關有用的資訊，做爲商品可視性的提升，再依據評估與測量的結果，來調整商品的銷售模式，進而提升商業的營運，獲得商業的盈餘。利用此成功的模式不斷循環，最終將會建立出一套最佳化的經營管理模式。這個理論和昨天 RFID Journal 的創辦人和主編，Mark Roberti 的理論其實很像，都是以利用 RFID 所蒐集到的資訊得知消費者的行爲，利用這些行爲加強商品的可視性，最後增加產品的銷售額，企業進而獲利。



Airbus 公司使用 RFID 的原因【圖 9】

然而爲何要使用 RFID 來增加商品或企業的可視度呢?其他的方式不好嗎?這裡他提出幾點做爲參考:

1. 作業上的好處:

(1). 更自動—較少人爲的介入，使營業效率提升。

(2). 增加準確度—降低人員的疏失。

(3). 新的技術—新的 EPC RFID 的標準與技術更能符合企業所需。

2. 營業上的好處:

(1). 降低存貨與使現金更能流通。

(2). 增加勞工的生產力與避免不必要的開銷。

下午第一場個別研討會研討由 Emco Wheaton 公司的總工程師，Christopher Greenslade 主講的利用 RFID 來追蹤危險物質，總部設在英國的一家石化油罐車設備的 Emco Wheaton 公司，引進由 Hi-G-Tek 公司所發展出的 RFID 安全監測系統，來全程追蹤車子行駛狀況。其操作分爲四個部分:

1. 行控中心指派油罐車到指定的服務地點，並規劃出行駛路徑。此部分可由顧客公司內部處理或經由企業資源規劃(Enterprise Resource Planning,ERP)來支援。

2．油罐車裝載指定數量的物品後，就會通知顧客的 ERP 系統，並開始啓動油罐車的監控系統。

3．當油罐車行經指定路線上的服務站時，會即時將油罐車資訊傳回 ERP 中心，進行持續的監控。所有的標籤都有保護裝置，一旦被破壞或指定數量的物品有所變動時，系統會立即產生警報，並通知行控中心。

4．當油罐車行駛到指定的服務地點並洩載完物品後，油罐車必須將警報關閉，否則會觸發系統的警報。

其優點爲:

1．物品在整個監控路程上，其物品的監測爲自動化。

2．智慧型系統的整合。

3．避免可能的油品偷竊。

4．消除人爲失誤與紙本作業。

本次會議最後一場的研討會由 Karstadt Warenhaus 公司的 RFID 專案經理，Tom Vieweger 主講—利用 RFID 來增進銷售量。Karstadt Warenhaus 集團爲一家高級的德國百貨公司，它已經成功地發展出利用 RFID 來管理高級服飾的清單。在這家百貨公司服飾館中的 6 個供應商已經在它的 50,000 件男士的牛仔褲，外套，和襯衫貼上 RFID 標籤，並成功的利用 RFID 做商品的管理。其流程可分爲六個步驟，分別爲:

1．Incoming Goods with RFID--利用 RFID 來計算進來(進貨)與出去(銷售出的)的商品。

2．Inventory Management with RFID--利用 RFID 來管理庫存量，進行商品流通。

3．RFID stock-checking--利用手持式 RFID 讀取器檢查商品的庫存量。

4．Shelf management with RFID--銷售衣架(櫃)上衣服的管理。

5．Price Management—利用手持式 RFID 讀取器可快速找到商品，並更改商品價格。

6．Sale at POS—在收銀檯進行 RFID 自動結帳與商品登錄動作，並利用 RFID 內部”自毀指令”來破壞 RFID 晶片。

	傳統人工計算	利用 RFID 計算
貨物進出計算	1 小時	8 分鐘
庫存量檢查	80 分鐘	20 分鐘
變更商品價格	4 ~ 14 天	2 小時 ~ 1 天
衣櫃衣服管理		每 10 分鐘自動記錄
商品資訊儲存		多於百分之九十八

傳統效率與使用 RFID 後其效率的比較表【表 1】

從上表可以看出，貨物進出計算的時間少了百分之八十五，庫存量檢查的時間少了百分之七十五，而變更商品價格的時間更是少了百分之七十五到百分之九十二。商品可儲存的資訊也比傳統標籤多了百分之九十八。衣櫃衣服的管理也不需要員工花時間一件一件點收，系統每 10 分鐘會自動記錄，並送資訊回主機。這是多麼驚人的成績呀。

再來我們可以分別從服飾商品供應商，Karstadt Warenhaus 百貨公司，和顧客來看他們各得到了那些益處:

1. 服飾商品供應商得到的好處:

(1). 可保證商品不間斷且快速的供貨。

(2). 可及早知道那些產品是賣的較好的。

2. Karstadt Warenhaus 百貨公司得到的好處:

(1). 加速處理貨物的程序。

(2). 即時可以知道貨物的庫存，並控制供需的量。

3. 顧客得到的好處:

(1). 增加商品資訊儲存的豐富性，顧客可自行查詢，並降低詢問老闆的時間。

(2). 顧客可立即知道是否尚有存貨可供選擇。

展示會在 11 月 5 日下午開始，只要你有時間，都可以到你有興趣的公司攤位進行詢問。下面就針對其中幾家公司的產品與技術進行報告:

1. ADT 公司:這家公司主要提供各種和電子感測與監視系統相關的產品，可以保護商品的安全，幫助銷售，與降低成本。其所研發的家庭入侵警報器，閉路電視(Closed Circuit TV, CCTV)，存取控制，火災偵測，與電子物品監測系統(Electric Article Surveillance, EAS)也受到很多全球 200 大零售商的青睞。其主打的服務與技術爲:

   (1). 技術工程人員素質高，可提供任何實體方面問題的協助。

   (2). RFID 爲一項可被高度發展與應用的技術，而應用的實用性視其感測器的多寡。ADT 發展有多整感測器可供顧客選擇與應用。

2. Checkpoint 公司:一家在 RFID 標籤天線射頻部分技術極高的公司，其 Check-Net 標籤爲各零售商選用的標籤之一。其產品可幫助零售商降低偷竊，增加產品可視度，提高顧客購買欲望。

3. EarthSearch 公司:這是一家總部設於美國的通訊技術公司，其產品主力爲 GPS 與無線通訊技術。他在 RFID 最新的技術爲 Auto Search RFID 技術，可借由 GPS 與 RFID 技術提供有價值商品管理與監視的能力。

4. Elektrobit(EB)公司:這是一家提供顧客 RFID 嵌入式軟體與硬體困難解決的自動化與無線網路公司，總部設在芬蘭。公司技術在雷達信號傳遞技術，空中信號處理技術，介面信號處理。其在 RFID Network 技術獨步全球，現有最新技術---EB RFID 網路辨識系統 (EB Identification Network, EBIN)，包含有 EB RFID 網路控制器，和 EB RFID 讀取器，並提供顧客系統整合與辨識資料的分析.

5. 摩托羅拉公司:提供企業商業機動性產品與解決方法的最佳選擇。其技術包括有最新高科技掃描與行動運算器，加強型 RFID 與無線網路技術，智慧保全之軟體，硬體，網路三方面整合技術。利用其技術可使顧客加強產品可視度，降低價格，增加效率。全球超過 900 廠商使用其設計或技術，超過 60 個國家與 9000 家企業使用其產品。

6. Ferroxtag 公司: Ferroxtag 專門發展使用於金屬表面的射頻 RFID 標籤，其公司使用了其獨創的 Ferrite 天線技術，可有效將標籤進行小型化與模組化設計，並能提高標籤遠距離讀取的能力。

7. Metro Group 公司:此公司在 2002 年創立,專門提供零售業銷售流程現代化處理的解決法,與發展下一代購物概念與實際經驗。其合作廠商有思科(Cisco)、英特爾(Intel)、國際商務機器公司(IBM)、富士通(Fujistu)、西門子(Siemens)等。
8. Mojix 公司:此公司在 2004 年成立,以應用深度空間(deep-space)RFID 通訊技術聞名。其最新最強的產品採用了 Mojix Star 系統,提升了產品的精確度,可以使被動式的 RFID 標籤讀取超過 100,000 次,被偵測物高精度偵測、定位與追蹤的能力。
9. SecuriCode 公司:此公司發展與製造主動式 RFID 模組,與距離量測產品。其服務範圍從單品銷售到整個完整的網路架構,應用在商品或個人的計算、追蹤、定位、搜索與鑑定。應用領域包含健康醫療、物流、銷售、保全、休閒與教育上。

11 月 7 日爲和 PowerID 公司的人討論有關 RFID 回饋電能不足解決方案,他們提出他們公司領先全球的被動式 RFID 標籤電源輔助模組(Battery Assisted Passive,BAP)。所以就針對 BAP 這個方案進行討論。

傳統被動式 RFID 標籤因爲本身不提供電源,其本身的電力是將讀取器傳導過來的信號,以電磁感應技術產生電流,來驅動 RFID 標籤晶片,並送出資料給讀取器。但如此可產生的電力非常有限,導致讀取器在讀取時的距離必須靠近 RFID 標籤。所以就有聰明的工程師在 RFID 標籤中加入一輔助的電源,使得 RFID 標籤晶片處於半驅動的狀態,當有讀取器傳導過來的信號時,便會完全驅動 RFID 標籤晶片,並送出資料給讀取器。運用此 BAP 的技術後,可以使原本被動式 RFID 標籤的驅動距離 3 米提升到 10 米,甚至有更遠到 15 米。這項技術對我們而言是非常有幫助的。而 PowerID 公司所發表的 BAP 電池技術更有下面幾項好處:

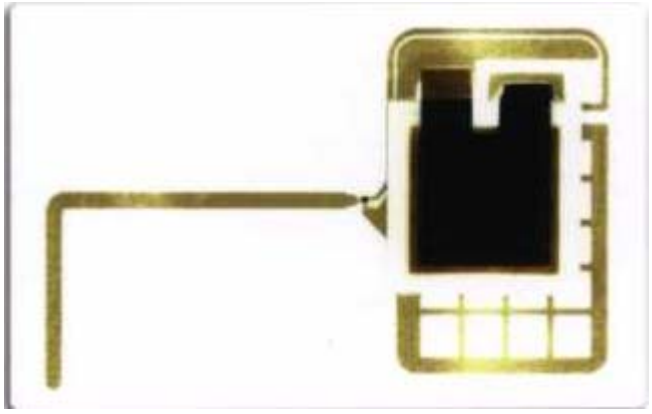
1. 用後可丟棄的電池。一般公司使用的 BAP 電池爲鈕扣型或其他薄且有彈性的電池。但此類電池大多含有有毒物質,並不適合放在食品或飲料的包裝上。北美和歐洲的法規規定,不能將含有鹼性或鋰成份的電池,當成一般的廢棄物丟棄。所以任何使用這一型式電池的顧客,必須將使用完後的包裝袋收集並回收。而 PowerID 所研發的電池是由兩個無毒的,且可廣泛取得的原料,鋅和錳的氧化物所組成。其陰極和陽極連接在一個有專利的黑色墨水薄膜上。當陰極和陽極上的黑色墨水混合時,就會產生 1.5 伏特的電壓。電池的所有成份,都經過美國聯邦政府的檢驗,爲沒有危險性的廢棄物,所以可以用完即丟。

2. 薄且有彈性的電池:鈕扣型電池因爲有堅硬的外殼，且必須鑲嵌在基板上，會造成標籤太厚且不能放在非平滑的表面。PowerID 所研發的電池爲沒有外殼的能源電池，可被印刷在任何型式上的聚合薄膜基板上。

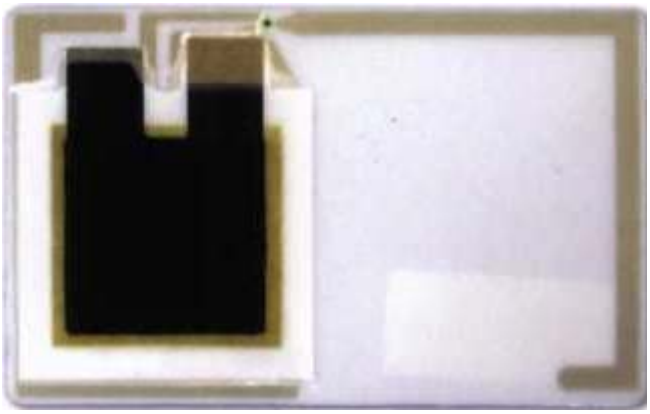
3.可印刷生產: PowerID 所研發的可印刷式電池提供一個便宜的解決方法。因爲它可以直接整合到標籤的製程中。標籤整合包含有電池、晶片和天線。

經過 PowerID 工程師解說後，覺得其所研發的電池技術剛好可以解決我們被動式 RFID 讀取距離短與回饋電能不足等問題。如果可以和他們合作，應可幫助我們加速解決小功率電源獲得不易之方法。

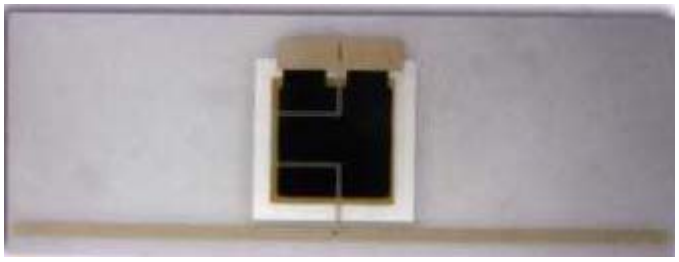
下面幾張圖爲 PowerID 公司發展出應用於不同產品上的 BAP 型標籤。其中 PowerG 型標籤應用於棧板上。PowerP 型標籤應用於泛信用卡之塑膠基板類產品上。PowerR 型標籤應用於彎曲型材料之產品上。其工作頻率皆爲 865~956MHz，介面協定使用 EPC Gen 2 標準。



PowerID 公司 PowerG 型標籤【圖 10】



PowerID 公司 PowerP 型標籤【圖 11】



PowerID 公司 PowerR 型標籤【圖 12】

參、心得

此次參加這個 RFID Journal LIVE! 2008 Europe 研討會暨展示會讓我覺得受益斐淺。第一天的 EPC 基本的訓練課程(Basics of EPC Training)，使我對 RFID EPC 有更深一層的體認。並讓我知道歐洲各國未來對 RFID 的看法爲何。第二天和第三天的會議，讓我知道 RFID 在歐洲已經被成功的應用在企業經營中，並已讓企業從中取得利益。且從此次會議中得知，不管是過去，現在，或是在未來，歐洲的政府都不遺餘力地推動這項新技術，廣建相關之基礎建設。而新的技術和觀念也都不斷地被學術界和產業界提出與被應用。在課餘時，我也和來自各地方的人一同討論，一同分享大家的經驗與碰到的問題。第四天聽完 PowerID 工程師的解說後，才對他們所研發的電池技術與應用方向有更多的了解，並對他們現在 BAP 的技術與當初設計的概念，感到敬佩。相信在不久的將來，台灣也會利用 RFID 標籤來取代舊有的條碼式標籤，讓我們顧客也會因使用到 RFID 技術，而得到更便利與更豐富的產品資訊。下面就全球 RFID 發展現況與國內 RFID 產業現況及問題發表心得：

1.全球 RFID 發展現況：

(1).全球標準發展逐漸一致，且衍生一些新應用標準。

A.EPC Gen2 標準已成國際主流。

B.特殊領域應用標準陸續頒布，實施與應用範圍逐漸擴大。

(2).市場成長落後預期，但 2006～2013 年之年複合成長率達百分之十五以上

A.全球市場產值因沃爾瑪(Wal-mart)所積極推動之物流應用建置成本仍偏高及系統導入可靠度瓶頸未解決等因素，成長落後預期。但其他應用如雨後春筍，產值貢獻比率已達百分之四十七， 除軍事應用導入完整外，2007 全球產值百分之七十二仍來自先導性示範。

(3).先導應用範圍與產業別擴張驚人，系統服務業利潤高於製造業

A.國際大廠順勢待發，爆發能量累積中，尤以 Motorola 39 億美元併購 Symbol，Lockheed Martin 4.25 億美元併購 Savi 最爲精典。

B.大廠雖已壟斷晶片生產，但產量並未如期爆發，相對利潤並不高。

C.RFID 尚無法隨插即用，各種應用之系統整合人才與技術短缺，雖影響全球普遍性推動，但也系統服務產業之高利潤卻不受影響。

(4).運輸與物品存取安全管理市場成長快速

A.據 IDTechEx 於 2007 年七月所公布的研究結果顯示，大眾交通運輸與安全監控 應用在北美、亞太與歐洲地區之需求，每年以百分之二十七成長。

2.國內 RFID 產業現況及問題：

(1).政策明確並帶頭推動

A.94 年行政院 SRB 會議在便利新科技主題下，積極推動 RFID 爲優先產業政策一部份。

B.政府單位投入十分積極，除科專計畫支持外，尚陸續在各部會推動一系列公領域示範計畫來刺激需求以帶動產業。

(2).廠商因商機不明、普遍觀望

A.因缺乏與業界感覺接近之 RFID 國內外應用成功案例，影響業界之投入意願，更甚是部分先導計畫缺少解決問題能力，反而形成產業推動障礙。

B.國內經營 RFID 產品之公司不少，但百分之九十五以上是代理商，主要產品多由美國引入，系統整合與應用服務也大都是由國外提供，解決問題能力與創新應用不足。

C.部份資訊、通訊業者多以尋求代工製造爲主要營運模式，比較沒有將重心放在推動有品牌、有特色之 RFID 應用解決方案，高利潤之系統技術並未建立。

(3).國際競爭能量不足

A.領導廠商未浮現，無法形成產業集結，國際訂單爭取不易。

B.缺乏具有高價值應用之系統設計與整合能力，自主之主流產品創意尚未產生，市場效應也未突破，造成國際市場切入困難，國內產出之小機會則搶破頭，削價競爭反不利產業良性發展。

(4).產業集結環境與條件欠缺，且一般規模不大，不利 RFID 新產業形成

A.國內投入 RFID 產業發展四年，參考國際發展模式，政府與廠商在各種公/私領域示範計畫推動不遺餘力，也帶動一些風潮，但因全球 RFID 產業成長及爆發延後，使得第一波投入廠商獲利有限，並有消退跡象。

B.國內第一波切入 UHF 頻段之 RFID 產業業界規模均不大，其中以永奕科技、資茂科技各 2 億元爲最大宗，並無代表性較大規模之電子製造業投入，一旦獲利不如預期，持續再投入之意願並不高。

C.國內 RFID 業界近 50 家，但以代理商居多，研究發展動能不足，因應 RFID 快速崛起，現有之製造業及系統服務業恐無法在全球產業發展中位居舉足輕重的角色。

D.各種領域之示範／先導計畫範圍相當廣，並以政府及大企業居多，但所引進裝備百分之九十五爲國外進口成本高，且達成實際商轉成功案例並不突顯，另部份先導計畫系統化技術瓶頸之解決能力缺乏，反而使得使用者失去信心，不利於產業發展。

E.RFID 電子標籤中之晶元（Die）國內部分僅有台積電、聯電之代工製造，並無自主性晶元開發技術與產品，另讀取器自行開發能力不足，主要廠商包括台揚、工研院、精準科技等均由 Intel 公司之 R1000 發展模組著手，成本無法大幅降低，且有 R1000 之生產權利金問題，唯有革命性之思維切入，方能有效突破國外產品之包圍。

肆、 建議事項

近二年來因適逢全球經濟衰退，不利 RFID 新技術導入，因此依據 Cartner 於 2007 年 4 月統計，年度全球產值百分之七十二仍來自先導示範應用，雖然因可靠度不足，而降低大規模導入意願，導致原本預估將是爆發性成長之物流供應業之產值不如預期，但仍維持二位數之高成長，其年複合成長率（CAGR）達百分之十五，此與國內其他產業比較仍屬高成長產業，國內 RFID 業界近 50 家，但以代理商居多，研究發展動能不足，一旦 RFID 全球市場崛起，現有之製造業及系統服務業規模恐無法在全球產業發展中位居舉足輕重的角色，因此配合行政院 RFID 產業推動政策指導下，建議國內 RFID 發展應從下列二個方向進行:

1.結合各項 RFID 之創意應用研發:

國內這幾年交通卡、悠遊卡、停車卡等 RFID 內需市場已促成台北智慧卡等公司投入，並建立一些產業基礎。由於 RFID 在運輸安全存取控制領域應用屬新興應用，國際專精廠商不多，且此應用領域需求多元，尚未有壟斷性廠商出現，適合國內積極投入。

2.強化系統整合技術，建立各種示範應用成功案例資料庫:

因應系統建置瓶頸之突破、而以解決技術問題切入，並結合短距通訊與運輸安全感測單元，完成動態運輸與 RFID 整合技術開發與測試成功，並以提供系統化、全球化之 RFID 運輸應用技術爲目標，俾能協助界業儘早切入尚屬藍海之 RFID 運輸與安全存取管理之國際市場。

附件一

無線射頻辨識系統在銷售與生產管理石材和大理石物料之應用註解

(RFID in distribution and production management of stone and marble blacks Application note)

Application Note

RFID in distribution and production management of stone and marble blocks

Several suppliers of marble, granite and stone have implemented RFID technology to improve the management of their business.

RFID technology contribution to automatic identification process:

- Real time Marble blocks tracking from their extraction at quarry to their delivery on customer´s facilities.
- Inventory management (identity, dimensions, weight, kind of marble...) making it possible to provide customers immediate information about stock availability and lead time.
- Accurate Process control. Marble blocks flow and their status are continuously monitored during the process, no line-of-sight needed between tag and interrogator. Besides, the use of readable and writable tags opens up the possibility of controlling the productive process without the necessity of using central process computers. Each Marble block carries a complete data record with it, not only identity, dimensions or weight but also its history and future.
- Decreasing handling errors. Due to the fact that information can be carried with the object and is always available in the right place.

Ferroxtag's Features:

FERROX«TAG» Screw Box is a High Frequency (13.56MHz) transponder that allows accurate identification over any kind of surface. It can be screwed or glued directly to the item to be identified.

Ferroxtag is complaint with the ISO/IES 15693 and ISO/IEC 18000-3 global open standards. This product offers user accessible memory of 1024 bits, organized in 32 blocks of 4 bytes and an optimized command set.

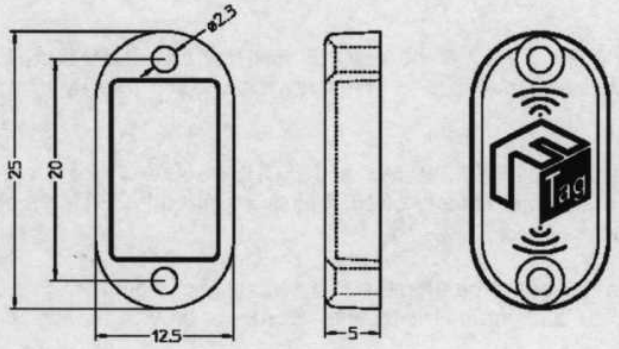
Each transponder has a factory programmed 8 bytes unique identifier. Prior to delivery, FerroxTag undergo complete and parametric testing, in order to provide the highest quality.

SPECIFICATIONS

Supported Standard	ISO/IEC 15693; ISO/IEC 18000-3
Operating Frequency	13.56 MHz
Unique identifier	8 bytes
EEPROM memory	1024 bits, 32 blocks x 4 bytes
User programmable memory	28 blocks x 4 bytes
Typical programming cycles	100,000
Data retention time	10 years
Data transfer	Up to 53 kbits/sec
Operating distance	40 cm (typical value for a 4 watt antenna)
Simultaneous Identification of Tags	Up to 50 tags per second (reader/antenna dependent)
Operating temperature	-25ºC to +130ºC
IC	NXP-ICODE SLI

MECHANICAL PROPERTIES

Dimensions	25 x 12.5 x 5 mm
Weight	2.5 grams
Case material	POLYAMIDE 66 UL94-V0
Degree of protection	IP68
Colour	White, Black, Blue, Brown
Storage temperature	-40ºC to +150ºC
Sealing material	Black epoxy/silicone



Why use FERROX«TAG» for this application?

1. The use of barcode labels or traditional RFID tags in harsh environments is almost impossible; they are easily affected by dust, humidity and high temperatures.
   Ferroxtag is completely insensitive to these hard environmental conditions that we easily find in Marble manufacturing facilities. Besides, its POLYAMIDE 66 UL94-V0 housing, compliant with IP68 degree of protection, not only protect internal circuits against certain level of impacts but also make the use of Ferroxtag inside liquids possible.

2. Operating range. Thanks to Ferroxtag's ceramic magnetic antenna with the capability of drive the magnetic field much better than air, this tag can achieve operating distances with typical values of 40 cm using a 4 watt reader and up to 8 cm with a 0.25 watt PDA RFID reader.

3. Cost saving. As well as above advantages, Ferroxtag with a memory that can be re-programmed almost an infinite number of times and a data retention capacity of ten years make of this tag the perfect solution for identification and production management of stone and marble blocks.

附件二

歐洲在零售業與存貨管理方面實行無線射頻辨識系統之指南

(The European Guide to Implement EPC/RFID for Retailers and their Suppliers)

GS1 in Europe

The European Guide to implement EPC/RFID for Retailers and their Suppliers

GS1 EPCglobal

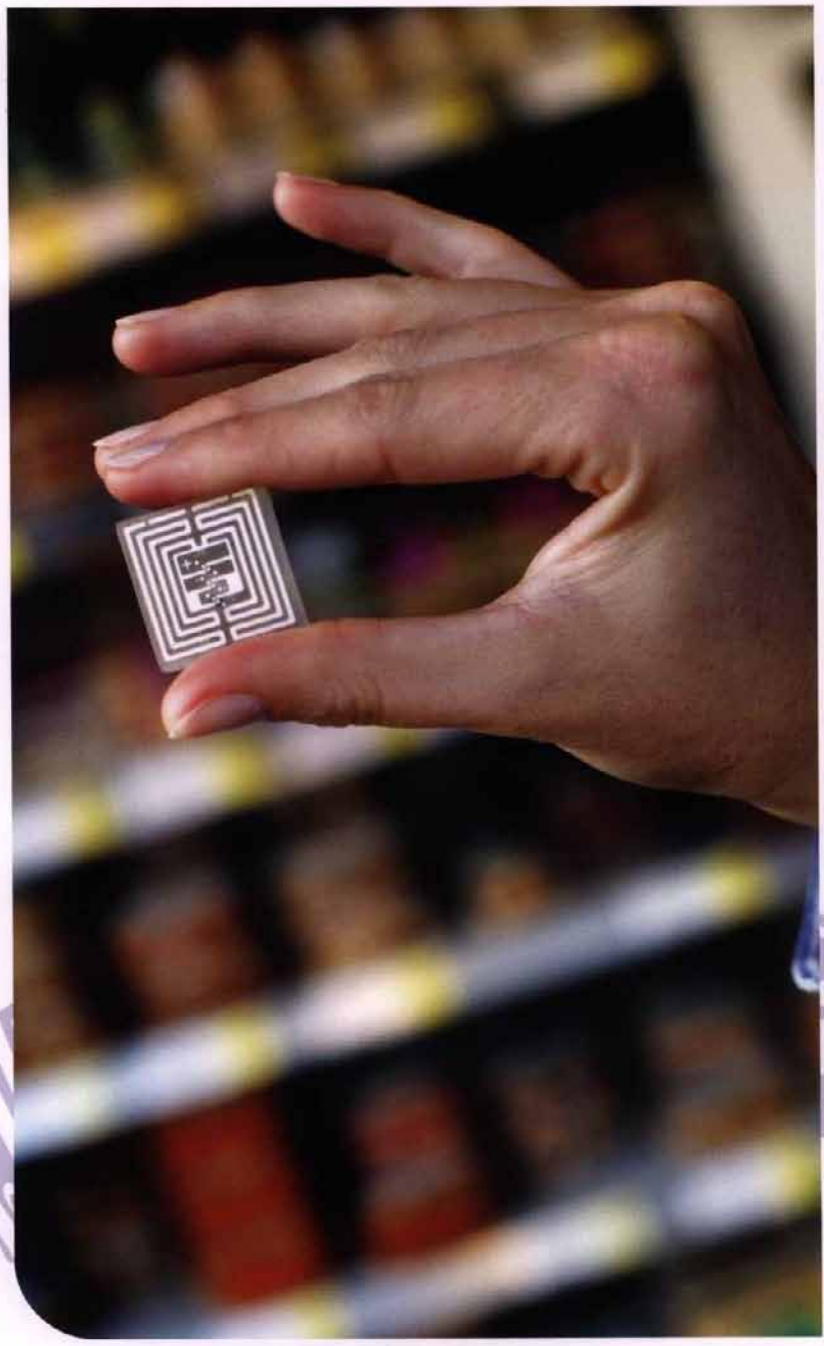


Table of contents

1. Introduction and objective

Modern supply chains are complex and involve many different companies working together to better serve the customer. EPC/RFID can clearly help all participants within the supply chain to get benefits. But in order to efficiently use EPC/RFID, the different companies involved need to agree on basic specifications and standards about how to implement this technology. Even when standards exist, there are still many ways to approach the deployment of the standard the related topics. This document should address those questions and give some answers to help companies in the deployment of EPC/RFID in Europe.

The creation of European Guide has been initiated by Carrefour and coordinated by GS1 in Europe by using the platform of the European Adoption Programme (EAP) to bring major stakeholders in the retail environment around one table. GS1 has invited major retailers and their suppliers in Europe to work together on a common document to create a guideline and reference of good practices to facilitate any future EPC implementations in Europe. This is not supposed to be a retailer driven or imposed exercise but a joint collaborative effort to further drive adoption of EPC in Europe.

The document is structured in a Q&A format giving answers to the major questions raised in the marketplace. The answers in this document are focused at a high level so that management can be better informed on the key issues and also have access to relevant complementary information.
The following companies have been working together on this document and agreed on its content:

- Carrefour
- Henkel
- Kraft International
- Metro Group
- Nestle
- P&G
- Rewe Group

The European Guide is supposed to be an "active" document on which the companies involved will continue to work on additional questions and answers raised in the marketplace. The version 1 of this guide has been released during the European Adoption Programme co-chair meeting in Neuss on the 26th March 2008. Version 2 will have additional technical and further management related questions and answers.

We invite other retailers and manufacturers in Europe to contribute to this document in order to build on this foundation and improve its usefulness. The companies do not need to be necessary GS1 EPCglobal members but the focus remains on the adoption of the EPC technology. Please contact or send your comments and feedback directly to the GS1 coordinator Stephane Pique (stephane.pique@gs1eu.org).

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2. Questions and answers

2.1 I have seen reports that retailers are using RFID already, what processes are they trying to improve with this technology?

Supply chain has been the major focus, the world's leading retailers and suppliers are working in this area although the actual use cases do differ. The most popular in the area of logistics is the ability to check goods in by putting RFID on each shipping unit. When the supplier makes available shipping information to the business partner, he includes the unique identification number for each pallet allowing the retailer to automatically receive the goods when that the Electronic Product Code (EPC) is read from a tag.

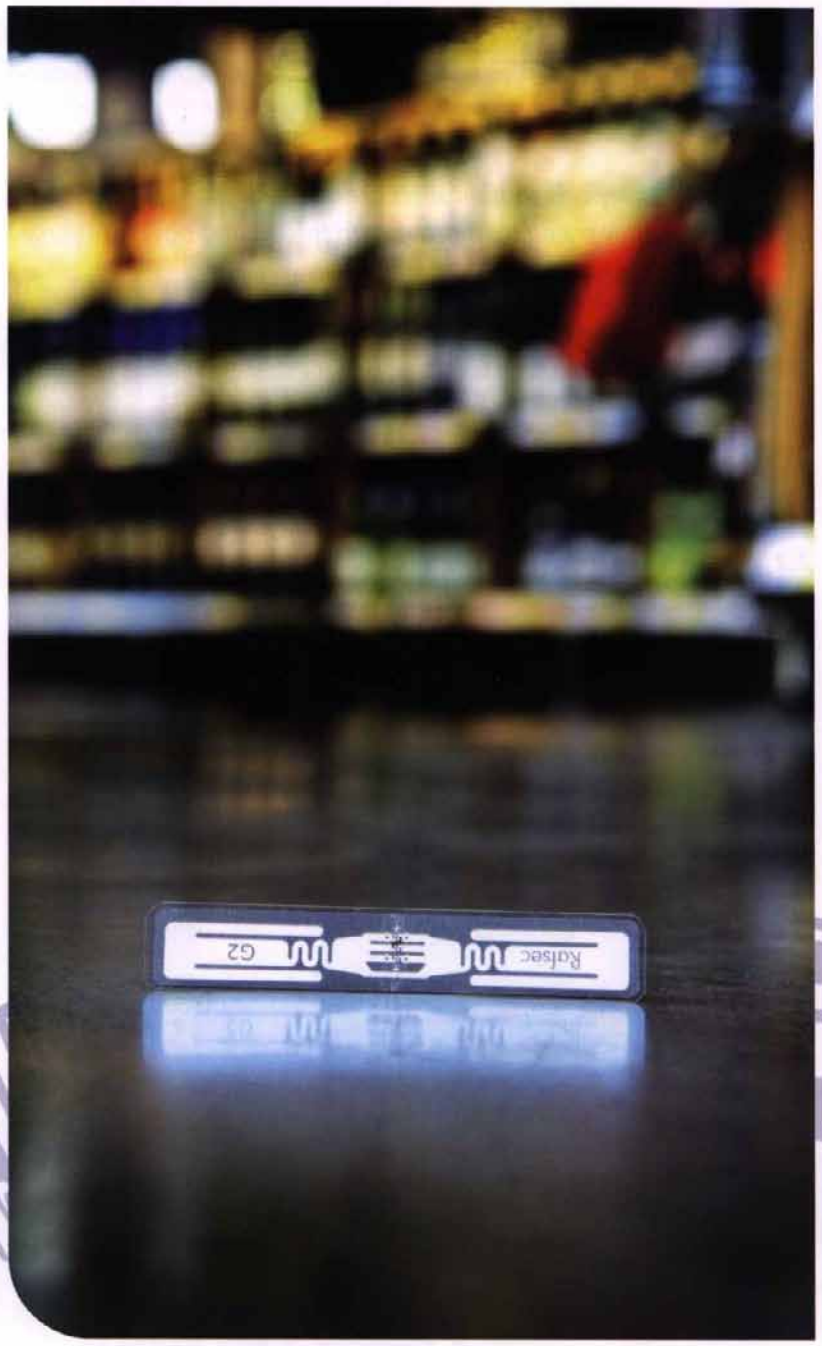
2.2 What are the main benefits that companies are trying to achieve by using the technology?

- Improve visibility and enhance traceability
- Improve availability of products on the shelves
- Improve customer experience
- Optimize warehouse and distribution labour efficiency
- Improve the speed of the checkout process
- Improve product quality and freshness
- Optimize inventory level to reduce costs
- Improve forecasting and planning with a more demand oriented approach
- Prevent theft

2.3 What are the major use cases?

The retailers are working on the following use cases to be implemented within the next three years:

- Asset management (RTI – Reusable Transport Items)
- Inventory management for apparel, media and entertainment and consumer electronics
- Warehouse management
- Return management
- Promotion execution


G2
Rafsec

2.4 Are there industry standards for these use cases or retailer specific rules to follow?

Yes, there are standards published by GS1 EPCglobal which have been developed and managed by end-users such as the authors. Those companies strongly recommend implementing GS1 EPCglobal standards as described in this document and published on the GS1 EPCglobal website: www.epcglobalinc.org/standards.

2.5 Are there any examples of suppliers finding their own internal value?

Examples exist where suppliers use RFID to improve asset management, tracking and control within their own operations. Trials are underway to understand how RFID can improve visibility within the supply chain between their suppliers and customers so that product availability improves and consumer satisfaction is enhanced.

2.6 How can RFID help improve the consumer experience of products and stores?

RFID can be used to make packaging and products more interactive. For example RFID can be used to give consumers more information about the product – ingredients, nutrition, safety, traceability, how to use information etc. RFID can also be used to help improve product flows to stores: improving on shelf availability for the consumer and the freshness of the products.

2.7 What GS1 data standards are needed for what?

It is recommended to use the GS1 Identification Keys. It is a globally managed System of numbering and marking to identify Trade Items (GTIN), Logistic or Transport Units (SSCC), Locations and legal entities (GLN), Assets and Reusable Transport Items (GRAI, GIAI), Service Relation and more. GS1 ensures the global unambiguous uniqueness of the identifier in the open Supply and Demand Chain[1]. For EDI (Electronic Data Interchange) it is recommended to use the GS1 EANCOM[2], a detailed Implementation Guideline of the UN/EDIFACT Standard messages using the GS1 Identification Keys and to conduct efficient Internet-based electro-

[1] For additional Information please contact your local GS1 Member Organization or use the GS1 General Specifications, January 2008, Version 8.0

[2] You can find additional information on http://www.gs1.org/productssolutions/ecom/ or contact your local GS1 organisation

nic commerce GS1 XML[3] schemas provide a global business messaging language of e-business. EPCIS[4] builds an Interface for data sharing, both within and across enterprises. This sharing is aimed at enabling participants in the EPCglobal Network to gain a shared view of the disposition of GTIN (or EPC) bearing objects within a relevant business context.

2.8 *Are there any best practices on how to use EPC Gen2?*

The EPCglobal RFID Implementation "Cookbook" is targeted towards readers who already know about RFID and intend to get involved in using the technology. The Cook Book includes information from EPCglobal working groups, of which many members are early RFID adopters. The objective of the Cookbook is to provide companies with practical and timely information needed as they prepare for RFID pilot and implementation projects by taking advantage of the learning already captured by the EPCglobal member community.
Please go to: www.epcglobalinc.org/what/cookbook

2.9 *What are the components for the tag price and the corresponding costs involved?*

The tag price is influenced by the following factors:

- Quantity
- Form factor (size, material, etc.)
- Memory size
- Features and functionalities
- Manufacturer

Depending on the above factor, the price range for basic tags on the market is between 0.10 and 0.25 EURO (as per end of 2007). The trend of the past and the future stays that the price drops with time.

2.10 *Is there a tool for evaluating an ROI?*

There are several ROI calculators available on the internet:

- www.gs1-germany.de (RFID Kalkulator)
- www.autoidecenter.org
- www.indicod-ecr.it/prodottiservizi/index.php?id=171

[3] You can find additional information on http://www.gs1.org/productssolutions/ecom/ or contact your local GS1 MO
[4] For more information look at: http://www.epcglobalinc.org/standards/epcis

2.11 What are the radio frequency usage rules in Europe?

All available RFID tags and readers sold in the European Single Market need to comply with EU equipment and radio regulations. Without compliance with those rules, such products can not be legally acquired in Europe.
Therefore, any RFID systems you buy in Europe can be deployed on the basis of current regulations. The applicable rules allow for the operation of efficient RFID systems without undue constraints in terms of performance compared to the US. In fact, the evolution of technologies and standards, particularly with respect to UHF-systems, has made it possible to utilise even the limited radio spectrum currently available in a very efficient way.
In addition to the improvements achieved so far, there are initiatives and studies on the way to further improve the performance and to enlarge the available radio spectrum in Europe. Those efforts will lead to even better performance than possible today and are aimed at improving further the scalability of the solutions in Europe to ensure mass adoption.

2.12 What kind of centres and labs are available for testing RFID on my products?

Six European EPC Labs agreed to work closely together and formed the European EPC Lab Network supporting the adoption of RFID and EPC technology in Europe. More information is available under: www.gs1eu.org/labs

2.13 Are there any guidelines or code of conduct in the usage of RFID?

It is recommended to use the official public policy guidelines published by GS1 EPCglobal. These guidelines are intended to complement compliance with the substantive and comprehensive body of national and international legislation and regulation that deals with consumer protection, consumer privacy and related issues. They are based, and will continue to be based, on industry responsibility, providing accurate information to consumers and ensuring consumer choice.

As new developments in EPC and its deployment occur, these Guidelines will evolve while continuing to represent the fundamental commitments of industry to consumers. It is hoped that further developments, including advances in technology, new applications and enhanced post-purchase benefits, will provide even more choices to both consumers and companies on the use of EPC tags. The sponsors of EPCglobal support continuing their focused efforts in these development areas to assure responsible and effective development of both the EPC technology and these Guidelines. You can find the mentioned guidelines under: www.epcglobalinc.org/public/ppsc_guide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3074024220403140000001CF8
Product: RFID_MAT1
DESCRIPTION
RFID Material 1
urn:epc:tag:sgtin-96:3.0037000
ADVANCO

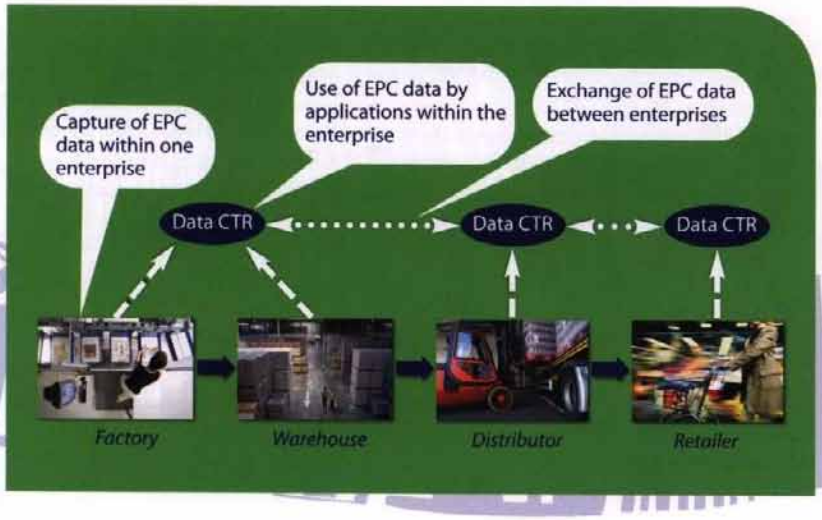
GS1 EPCglobal has also developed a website called www.discoverrfid.org, a consumer-oriented website to enable to understand what is behind RFID and EPC and how the technology helps companies, institutions and organisations make life easier and safer – in other words, better.

2.14 *We use a GS1 barcode. If I put an RFID tag in addition, do I need to change the current GS1 identification key?*

No, there is no need to change the current bar code number (GTIN) if a RFID Tag is put in addition onto a product. The brand owner is responsible to distinguish between items with or without an EPC Tag if he supplies both. Identical items, with and without an EPC Tag, must have the same GTIN to enable the smooth operation of the Supply Chain.

2.15 *What is EPCIS and how does it work?*

EPC Information Services (EPCIS) is an EPCglobal standard for sharing EPC related information between trading partners. EPCIS provides new capabilities to improve efficiency, security, and visibility in the global supply chain. EPCIS facilitates internal data capture as well as external sharing of information about movement and status of goods in the physical world. Companies can exchange information by "talking the same language".
EPCIS provides standard interfaces that enable the development of business applications with a much finer granularity of detail.
Picture: Introduction to EPCIS, October 2007. EPCglobal JAG meeting in Hong Kong?????



2.16 What kind of information can be exchanged?

The EPCIS enables the exchange of information on the What, Where, When, and Why of events occurring in any supply chain. This is important business information, such the time, location, disposition and business step of each event that occurs during the life of an item in the supply chain. While EPCIS is an integral part of the EPCglobal Network, it differs from elements at the lower layers of the Architecture in three key respects:

1. EPCIS deals explicitly with historical data (in addition to current data). The lower layers of the stack, in contrast, are oriented exclusively towards real-time processing of EPC data.

2. EPCIS often deals not just with raw EPC observations, but also in contexts that imbue those observations with meaning relative to the physical world and to specific steps in operational or analytical business processes. The lower layers of the stack are more observational in nature.

3. EPCIS operates within enterprise environments at a level that is much more diverse and multi-faceted. This is due to the desire to share EPCIS data between enterprises which are likely to have different solutions deployed to perform similar tasks. In part, it is also due to the persistent nature of EPCIS data.

Generically, EPCIS deals in two kinds of data: event data and master data. Event data arises in the course of carrying out business processes, and is captured through the EPCIS Capture Interface and made available for query through the EPCIS Query Interfaces. Master data is additional data that provides the necessary context for interpreting the event data. It is available for query through the EPCIS Query Control Interface, but the means by which master data enters the system is not specified in the EPCIS 1.0 specification.

2.17 Does the EPCIS replace EDI?

No. The EPCIS standard provides a way to share high volume, detailed information about events and status among cooperating partners. EPCIS does not address purchasing, forecasts, bidding, billing, etc. that are typically exchanged via EDI in a business transaction between two parties.

2.18 Should our company implement GS1 or EPCglobal Standards?

The authors of the document strongly recommend to use the GS1 EPCglobal standards and therefore to join the organisation. The prerequisite for creating an EPC number is to be member of EPCglobal.

2.19 *What is the process for keeping data in Sync between the parties (product changes/* new products / management of discontinuations)?

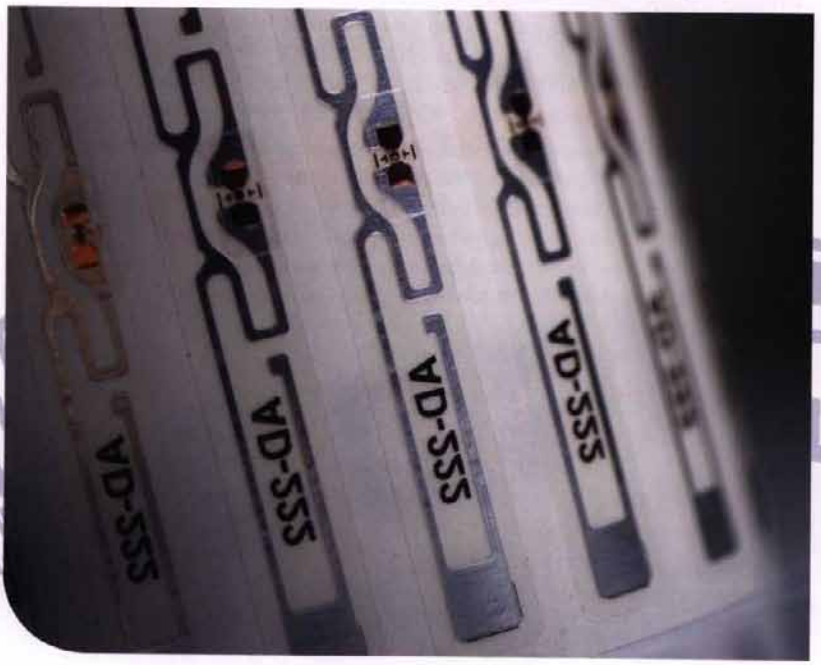
The GS1 Global Data Synchronisation Network (GDSN) enables the management of product information. Some examples are product description, packaging dimensions, GTIN reference, weight, etc. EPC data are related to the physical flow of the item during its life cycle. The link between these two worlds is the item identification number e.g. GTIN and EPC association. The synchronization principles are not affected by the EPCIS introduction.

2.20 *Who should read my data and which data?*

The collaboration agreement between the trading partners will define the access rights to specific data. A company could leverage their EPCIS repository for capturing business events from middleware, integrating the EPCIS repository into the enterprise architecture via web services, and allowing trading partners to access data in the EPCIS repository in a secure manner via the query interface. To have access to Data in a secure manner there are two forms of security described in the EPCIS specification – authentication and authorization.

2.21 *How should an EPC in the occurrence of the SGTIN and SSCC be reflected in a despatch advice?*

GS1 Germany and the relevant national boards have developed a recommendation for the use of the SGTIN and SSCC within the EANCOM DESADV. The relevant codes to be used have already been submitted and approved by the GS1 GSMP (Global Standards Management Process). Currently the entire national recommendation has been forwarded to GSMP in order to approve the document on a global level to ensure that user companies transmit the SGTIN and SSCC in the EANCOM DESADV in the same way worldwide.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AD-SSS
AD-SSS

3. Acronyms

DC	Distribution Center
DESADV	Despatch Advice
EANCOM	EAN Communication
EDI	Electronic Data Interchange
EDIFACT	Electronic Data Interchange for Administration, Commerce and Transport
EPC	Electronic Product Code
EPCIS	Electronic Product Code Information Services
GIAI	Global Individual Asset Identifier
GLN	Global Location Number
GTIN	Global Trade Item Number
GRAI	Global Returnable Asset Identifier
GSMP	Global Standards Management Process
JAG	Joint Action Groups
POS	Point Of Sales
ROI	Return On Investment
RTI	Reusable Transport Items
SGTIN	Serialized Global Trade Identification Number
SSCC	Serialised Shipping Container Code
XML	eXtensible Markup Language

4. Additional resources

Auto-ID labs	www.autoidlabs.org
GS1	www.gs1.org
GS1 EPCglobal	www.epcglobalinc.org
GS1 in Europe	www.gs1eu.org
METRO Group	www.metro-link.com

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GS1 in Europe is a collaboration of 44 GS1 member organisations. We lead the creation and implementation of harmonised, user-driven solutions for improving the supply and demand chain of European companies. These solutions are always based on GS1 standards like EPC.

One world. One system. One global language of business.

GS1 in Europe

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附件三

利用 RFID 營造一個安全、有效率且環保的綠色世界

(COMMITTED TO A SECURE,EFFICIENT AND GREEN WORLD)

EarthSearch Communications International

COMMITTED TO A SECURE, EFFICIENT AND GREEN WORLD

THE POWER TO:

- *search*
- *find*
- *secure*
- *monitor*

EarthSearch
COMMUNICATIONS
INTERNATIONAL INC.


OUR SOLUTIONS
At EarthSearch Communications International, Inc., we are committed to developing innovative solutions that improve the way businesses manage and secure their valuable assets. Through leading edge GPS and wireless technologies, assets are tracked, located and monitored continuously. We understand the importance of asset management from a tractor trailer on the other side of the world, to a teen driver down the street, to a package moving from country to country.
We also have the latest products in multi-media navigation devices which complement existing tracking technologies. Our navigation technology provides solutions for getting our customers to their set location and giving them the ability to interact on a whole new level with our multi-media applications. Our focus is to create solutions that create a value for our customer's business and the end users.
BENEFIT ONE 1
Increased security in global asset management
BENEFIT TWO 2
Increased efficiency, proactive monitoring and improved accuracy by eliminating human intervention
BENEFIT THREE 3
Integrated multi-media applications for improved viewing, tracking and entertainment

OUR TECHNOLOGY PROVIDES

> Management of people and assets
> Tracking of vehicles/materials/freight/packages anywhere in the world
> Global protection of personnel within and beyond their borders
> Development of comprehensive reporting for continuous and accurate monitoring
> Customized applications based on specific requirements

TECHNOLOGY APPLICATIONS:

TRACKING, MONITORING, REPORTING

AutoSearchGPS™ - EarthSearch has developed a revolutionary vehicle management system that gives you additional security and safety by allowing you to be in constant control. AutoSearchGPS™ is an advanced device for auto theft deterrent, stolen vehicle recovery and personal safety.

> Remote Door Lock and Unlock
> Front Passenger Seat Sensor
> Detailed Mileage Report
> Preventative Maintenance Thresholds

AutoSearchRFID™

AutoSearchRFID™ is integrated with RFID chip technology to provide the users with more detailed information about their assets. Users have the ability to track individual packages, their vehicles, as well as their drivers no matter where they are in the world.

NAVIGATION

NAVPlayer™ – EarthSearch's premier multi-media navigational device featuring:

> Speak Navigation (Turn-by-Turn Voice Directions)
> 4.3" Touch Screen
> Picture-N-Picture
> Video Games
> E-Book
> FM Transmitter
> MP3 Player
> MPEG4 Video Player


NAVPlayer™

RoadNUT™ – EarthSearch's smaller, hand-held navigational device featuring:

> Speak Navigation (Turn-by-Turn Voice Directions)
> 3.5" Touch Screen
> Video Games
> E-Book
> MP3 Player
> MPEG4 Video Player


RoadNUT™


AutoSearchGPS™

OUR CUSTOMER SUPPORT

Our customer support, providing consistent service to our customers with extreme care and attention to detail, is one of the best in the industry. You get the best customer service and support at all times, wherever you are located around the globe.

OUR VALUE PROPOSITION

Our commitment to and expertise in securing assets and people, our ability to customize each and every application, our own manufacturing and R&D facilities along with constant focus on excellence in customer support globally, set us apart from the rest…One Customer at a Time!

CUSTOMIZATION

EarthSearch offers full customization capabilities to ensure total asset management control and recovery. Whether you own a business with a fleet to manage or seeking the latest in leading edge navigational devices, we have the solutions for you. Our wholly owned Research and Development facility in South America is creating and developing the most advanced wireless devices and applications in the marketplace today, and in the future.

All of our new products are field tested extensively before being distributed to our customers. Our Chief Technology Officer and development teams are always on the go, traveling the globe for the most innovative technologies in order to proactively serve the demands of our customers.

附件四

GS1 EPCglobal 公司商務通訊

(GS1 EPCglobal Newsletter)

GS1 EPCglobal

GS1 EPCglobal Newsletter

ALSO IN THIS ISSUE:

Updates in Standards Development

The GS1 EPCglobal community continues to build and expand upon the initial set of standards that enable and facilitate use of GS1 and EPCglobal standards-based technology around the world. Significant work has been recently completed in the development of requirements in the following areas:

- Active Tags - in particular for container asset tagging, particularly important in the Transportation and Logistics sector and usage in identifying parts in industrial manufacturing
- Discovery services – which will enable trading partners to find business event (EPCIS) data in a secure way even if they do not have a direct business relationship with someone who has that data
- RFID based Electronic Article Surveillance
- Consumer Electronics
- Aerospace and Defense Item level
- Transportation and Logistics 3 Pilot Program – Connecting to Customs

These requirements will lead to either extensions to existing standards (UHF Gen 2, Tag Data and EPCIS) or potentially new standards that will further extend implementation of EPC and RFID technology.

The EPCglobal Architecture Group is at work on a new version of the EPCglobal Architecture Framework document. The updates will include:

- Enhancements and Clarifications as a result of the analysis completed during the 60 day EPCglobal standards review
- Clearer definition of the EPCglobal Network and how it relates to the GS1 System (EDI, GDSN, Traceability, etc.)
- Illustrating relation of EPCglobal standards to other standards e.g. ISO
- Update on Data Discovery
- Position on "Internet of Things", "Distributed ONS", etc.

Standards Integration News

The initial EPCglobal standards' set is now widely in use and serves as the base for the implementation of EPC and RFID technology throughout different industries. Over the last 6 months, updates to the EPCglobal standards have been completed to ensure interoperability of those standards with the GS1 system. There have been

updates completed to the ONS (Object Naming Service) Standard and Tag Data Standard that will ensure that any GS1 identification key can be used to encode an EPC tag and can be leveraged in finding data across the supply chain through the use of ONS.

Don't miss the 6th JAG Meeting in Bonn, Germany from 6 to 10 October 2008

The October JAG is hosted by GS1 Germany and the location is sponsored by DHL. It will be held in Germany at the beautiful, modern meeting facilities of the Deutsche Post AG Tower in Bonn and the DHL Innovation Center in Troisdorf. The venues are a quick 15 minute drive from each other and shuttles will be provided between the locations.

Register now to ensure your place at the JAG October 6-10th, 2008
http://www.epcglobalinc.org/about/events/JAG/

JAG Highlights

- Hear the latest news on the BRIDGE Project, GS1 EPCglobal's role in the Internet of Things, global adoption, public policy, implementation obstacles and successes
- Find out current developments of standards for RFID enabled Electronic Article Surveillance and Active Tagging, Auto-Id projects, and the extended GS1 EPCglobal Certification Program
- Experience Hardware, Software and Tag Performance Demos

- Tour the DHL and Metro's Innovation Centers, the real Future store, and Textile implementations at Galeria Kaufhof and REWE
- Learn about GS1 EPCglobal Architecture & Standards and the Standards Development Process
- Join in the requirements gathering process of the IAGs: Aerospace & Defense, Consumer Electronics and Transport & Logistics
- Join newly launched groups such as the Liquids & Metals Interest Group and Tag Alteration for Consumer Usage Joint Requirements Group
- Network with the leaders of industry driving global adoption of EPC/RFID technology
- And more! To review the complete agenda and sessions descriptions: http://www.epcglobalinc.org/about/events/JAG/Jag_sessions

A special thank you to our sponsors:

GS1 Germany DHL Checkpoint

Public Policy Steering Committee (PPSC)

U.S. – European Union Cooperation on RFID

The European Commission and the US Department of Commerce supported a Trans-Atlantic Symposium on the Societal Benefits of RFID, as part of the Transatlantic Economic Council (TEC) initiatives agreed to by President Bush and Chancellor Merkel at the 2007 US-EU Summit. The symposium promoted dialogue on the benefits of RFID technologies in four key areas: environmental protection and sustainability, healthcare delivery and supply chain security. GS1 EPCglobal was a sponsor of the event and users of EPC technology participated in every panel discussion.

The U.S. Federal Trade Commission also held a "Transatlantic RFID Workshop on Consumer Privacy and Data Security," to bring together industry representatives, government officials, and consumer advocates from Europe and the United States to discuss security and privacy concerns associated with RFID.

These events were important opportunities to discuss the differences in U.S. and EU approaches to RFID regulation. Having the EC delegation in the U.S. gave GS1 EPCglobal and some of its subscribers an opportunity to meet informally with leaders from the Information Society and Media Directorate General allowing them to gain a better understanding of Europe's approach.

The two governments considered the symposium and workshop a success and agreed that similar events will be organized in Brussels and in the U.S. next year. The successful outcome has assured the continuation of the formal U.S - EU dialogue on RFID.

An important conclusion from the events is that the EC will ask for the "Internet of Things" to be added to the current transatlantic dialogue on privacy, security and societal benefits. This will give the U.S. government and industry more of a voice in EC deliberations on the Internet of Things.

At the conclusion of the symposium the U.S. Department of Commerce announced the first U.S. – EU government sponsored RFID pilot. The pilot will use RFID to track the shipment of radioactive isotopes from the U.S. to Europe and back. From an informal meeting, we understood that an additional budget will be available in 2009 from the EC for such research projects. However, it is unlikely that we will see an increase on the U.S. side, as neither presidential candidate has indicated clear support for spending on technology R&D.

The U.S. Department of Commerce was asked to consider a way to make their RFID deliberations with the EU more global in nature by involving Asian countries with important EPC applications.

Auto – ID Labs Research Program

The Auto ID Labs have released 3 white papers which can be downloaded from http://www.autoidlabs.org. At the upcoming JAG meeting in Bonn the labs will host a session which will be an opportunity to gain more insight into the main workstreams the labs are focusing on in terms of research.

Understanding the Impact of Emerging Technologies on Process Optimization: The Case of RFID Technology (by Samuel, Fosso Wamba; Ygal, Bendavid)

This paper examines the case of one supply chain in the electricity sector where RFID technology integrated with firm's information systems acts as an enabler of process optimization. Using a business process approach and laboratory simulation, we explain how the implementation of RFID technology can increase the visibility of information at various layers of the supply chain, allowing members to gather precise information on real demand and improve replenishment processes. On the other hand, while RFID technology has the potential to automate some processes, human intervention is still required. Therefore, use case scenarios and sensitivity analysis should be carefully considered when selecting the proper design (architecture options) for the virtual and hardware components of RFID systems. The choice of the appropriate configuration needs to be integrated in the firm's strategies and supply chain partner's vision.

Integrating RFID Readers in the Enterprise IT – Overview of Intra-organizational RFID System Services and Architectures (by Floerkemeier, Christian)

RFID system deployments require the configuration, monitoring and data management of RFID readers. This paper provides an overview of different services deployed in intra-organizational RFID systems and analyzes system architectures implemented today. We also compare emerging standards developed by the EPCglobal community that aim to standardize system interfaces and reader protocols in RFID deployments. Our analysis distinguishes a centralized architecture, where a controller device or a software component on an application server locally controls the RFID readers, and an autonomous architecture, where the RFID readers execute application logic and are managed by enterprise IT management systems.

Wireless Sensor Networks (by Sanchez, Tomas; Kim, Daeyoung)

Recently, the debate over the integration of Wireless Sensor Networks (WSN) and Radio Frequency Identification (RFID) has garnered an increasing amount of attention despite their appearing to be disparate technologies. On one hand, the RFID community realizes how adding sensor data to their infrastructures could provide added value to the RFID-based services. On the other hand, the use of unique identifiers in WSN would improve their manageability in a future where millions of sensor nodes could be scattered across the globe. However, not only is it not clear which specific applications such an integration could bring, there is also no consensus regarding the best approach to achieve it. In this article, we propose a framework in which WSN and RFID coexist to provide context information about users and objects. WSN information is coupled with unique identifiers and participates in the RFID core services. Additionally, context aware services interact with the RFID infrastructure and provide real-time service to the users participating in the framework.

Joint Requirements Group

Sensors and Battery-Assist Passive Tagging JRG

The SB JRG held a half-day session at the recent Joint Action Group meeting in Las Vegas, Nevada. High-level sets of requirements from Boeing and General Electrics were discussed. The Technology Demonstration was delayed indefinitely until end-user participation increases. The JRG will review progress in end-user interest in December 2008.

STILL OPEN – Call for Proposals: End-users interested in sensor and/or battery-assisted passive tags are invited to propose business use cases that they would like to see demonstrated by available technology.

For more information, please contact Giselle Ow-Yang at gowyang@epcglobalinc.org.

Tag Data 2 JRG

The TD2 JRG has just completed requirements for filter values, additional TID and User Memory requirements. Once all requirements are approved by the TSC we expect the TDTS WG to add these items to TDS version 1.5.

Rick Schuessler of Motorola Symbol and Mark Harrison of Cambridge Auto-ID Labs along with Sylvia Stein, GS1 Netherlands will be hosting an informative session at the JAG meeting in Bonn on the afternoon of October 7, 2008.

This session which is open to everybody will provide more information on what will be covered in TDS 1.5.

Tag Data JRG

This JRG will be asked late September, 2008 to review the mapped parts of the TDS 1.5 standard in order to make sure that the approved requirements have been fully implemented. This should allow for comments to the draft of the standard when it reaches the SAG review and comment period.

Certificate Profile JRG

A new JRG has been created to look at the current Certificate Profile Specification on the GS1 EPCglobal Website and consider business cases for evolving this standard. Kevin Dean of GS1 Canada will be co-Chairing this group. More information on the activities of this new group is available by accessing http://www.epcglobalinc.org/apps/org/workgroup/jrg_cp/

For more information on the Certificate Profile JRG, please contact Mark Frey at mfrey@epcglobalinc.org

Data Exchange JRG

The Data Exchange JRG is still operational – although it has sent its first set of requirements to the Core Business Vocabulary WG for standards development. This group has been focused on harmonizing their vocabulary terminology with others within the GS1 Global Data Dictionary. It has made some errata changes to their definitions and examples for clarification as a result of this harmonization effort, and expects a better standard as a result. The joint effort will deliver the Core Business Vocabulary (CBV) for incorporation in the GS1 Global Data Dictionary once the CBV is ratified in GS1 EPCglobal. An additional effort to understand and align on meaning of physical location based on requirements from this group will soon begin in GSMP with much input from this working group – look for a Call to Action soon!

In addition, the members of this group are constantly working to provide education and guidance to industries new to the GS1 EPCglobal community as well as those who have developed their own vocabulary requirements. These requirements are vetted and approved for incorporation into a later version of the CBV standard after the initial release.

Data Discovery JRG

The Data Discovery workgroup has been busy analyzing use cases, documenting high level technical principles, and doing an analysis on potential discovery models. Drafting of the business requirements will begin in earnest in the coming months. These requirements will center around security and access control, scalability and data are all being analyzed.

Discovery could be best defined as follows:

- Finding and obtaining all relevant EPCIS data…
- …to which a party is authorized,…
- …when some of that data is under the control of other parties with whom no prior business relationship exists

Discovery builds on the visibility information exchange that is supported by EPCIS, providing a bridge between islands of information in the supply chain between partners who may be unknown to one another.

For more information on the Data Discovery JRG, please contact Gena Morgan at gmorgan@epcglobalinc.org.

RFID based Electronic Article Surveillance JRG

This group has completed the scenario and requirements documents. These documents have been approved by the JRG, the applicable IAG's, the BSC and the TSC. Currently, it is being reviewed by the GS1 Arc committee. The group plans on meeting at the JAG meeting in Bonn in order to discuss a potential 2009 pilot and to hand over the EAS deactivation requirements to the newly formed Tag Alteration for Consumer Usage JRG.

Thank you to all the participants for their input and a special thank you to the following people.

- Co-chairs:
  - Retail Supply Chain (RSC) Retailer: Brand Elverston, Wal-Mart
  - Retail Supply Chain (RSC) Manufacturer: Dirk Heyman, Procter and Gamble
  - Hardware Action Group (HAG): John Onderko, Kimberly- Clark Corporation
  - Software Action Group (SAG): Dave Husak, Reva Systems
- Document Editors:
  - Requirements Document: Chris Diorio, Impinj
  - Scenarios Document: Steve Howells, Checkpoint

Tag Alteration for Consumer Usage JRG

The Tag Alteration for Consumer Usage JRG will kick-off at the JAG meeting in Bonn. The purpose of the JRG is to define the scope of modifications that a retailer may make to a non easily removable tag at or around the time that a consumer takes possession of the tagged object. Such modifications may include, but are not limited to,

- hiding or destroying the contents of user memory
- altering, anonymizing, or overwriting the EPC
- reducing the tag's read range
- hiding the tag's TID
- killing the tag
- other changes that may arise from the work of the JRG.

Appointed Co-chairs include:

- Retail Supply Chain (RSC) Retailer: Richard Ulrich, Wal-Mart
- Retail Supply Chain (RSC) Manufacturer: Dirk Heyman, Procter and Gamble

Standards Development Process

The period of collecting requirements for the next version of the Standards Development Process (SDP) has come to a close. This JWG has now started efforts to take the requirements and to draft SDP version 1.5.

The period of collecting requirements for the next version of the Standards Development Process (SDP) has come to a close. This JWG has now started efforts to take the requirements and to draft SDP version 1.5.

An educational overview of the SDP will be held at the forthcoming JAG meeting in Bonn on Monday, October 6, 2008 starting at 10:00 am.

For more information about the SDP JWG contact Mark Frey at mfrey@epcglobalinc.org

Certification

In recent months the following companies have successfully passed RFID products for GS1 EPCglobal certification.

HARDWARE	
Company Name	Product Name
Alien Technology	Squiggle ALN-9540 (Higgs IC)
Alien Technology	Squiggle ALN-9640 (Higgs-3 IC)
NXP Semiconductors Austria GmbH Styria	NXP Tag (UCode G2 XM)
NXP Semiconductors Austria GmbH Styria	NXP Tag (UCode G2 XL)
Shanghai Quanray Electronics Co., Ltd.	Qstar (QR2233)
Toppan Printing Co., Ltd.	TPG-Label-001 (Monza 2 IC)
Toppan Printing Co., Ltd.	TPG-Label-002 (UCode G2 XL)
FEIG ELECTRONIC	ID ISC.LRU2000 Reader
Industrial Technology Research Institute	Minimization Passive RFID Reader
Mojix, Inc.	STAR 1000 Reader
Convergence Systems Limited	4 Port Intelligent RFID Reader (VAR)
LS Industrial Systems Co., Ltd.	XCODE Reader - IU9003 (VAR)

SOFTWARE	
Company Name	Product Name
Hanwol Co., LTD	CrossOVER
Institute for Logistics Information Technology	LIT ALE Manager
Institute for Logistics Information Technology	LIT RP Manager
International Business Machines	IBM WebSphere RFID Information Center ePedigree
SupplyScape Corporation	Product Security E-Pedigree
ECO, Inc.	SmartEPC
Electronics and Telecommunications Research Institute (ETRI)	SRIS (Secure RFID Integration System)
ETH Zurich (Auto-ID Labs)	Accada EPCIS
Institute for Logistics Information Technology	ILIT EPCIS Manager
LG Hitachi	UBIMAX
MetaBiz, Inc.	R/U - EDT Pro Enterprise Server

For more information, please visit:
http://www.epcglobalinc.org/certification

Accredited Test Centers (ATC)

GS1 EPCglobal Accredited Test Centers provide a lot more than mere "Testing services" since they bring a wealth of experience and competence in RFID that can benefit end users from different industries in finding the right solutions for their particular needs and give them the confidence in the technology and its application in finding new business value.

As a consequence and to better reflect this, the new ATC program Framework is based on 4 core accreditation components being;

1) EPCglobal Quality System (A subset of ISO 17025),

2) Technical Services (Core Technical requirements)

3) Testing Services

4) Recognized Services

There are 3 new test Centers that have been accredited:

Accredited Test Centers (ATC)	
Company Name	Product Name
GS1 Korea	Korea Testing Laboratory, KTL
Invengo Information Technology Co., Ltd.	Shenzhen Intelligent RFID Product Performance Test Center
Yeon Technologies	Pacific RFID Performance Center

For more information, please visit:
http://www.epcglobalinc.org/test_centers/

Cross Industry Adoption and Implementation Group

Implementation Sharing (IS)

The Implementation Sharing Interest Group completed a survey on September 12, 2008 to attempt to better understand the need of the end user community in terms of EPC and EPCIS implementation. Responses were received from 26 countries and 12 different industry sectors.

The survey results will be used to understand perceived obstacles to implementation, identification and prioritization of application areas of community interest, and preferred methods of community support for implementation activities. The survey results will be reviewed at the plenary session as well as at the Implementation Sharing Interest Group work session of the JAG meeting in Bonn on October 8, 2008.

European Adoption Program (EAP)

The release of the first version of the "European guide to implement EPC/RFID for Retailers and their Suppliers" has been a success. The website of GS1 in Europe (www.gs1.eu/guidelines) registered over 260 downloads, the press picked it up very well and very positive feedback was received from the market. In the meantime, the guideline has been translated in German and French and has been distributed through different channels. In addition, retailers and manufacturers are requesting to contribute to the second version which is under preparation.

The EPC Europe Conference will be on the November 5, 2008 in Prague co-located at the fourth annual RFID Journal LIVE! Europe. At this event you will hear how leading early adopters, including Daimler, METRO, REWE, Victorinox, EPAL and Nestlé are using EPC technology to drive real business benefits. GS1 members have free access to the EPC conference and general session and exhibition of the RFID Journal event and get a special discount for any further sessions of the RFID Journal LIVE! Europe.

Industry Action Groups

Retail Supply Chain (RSC IAG)

The RSC IAG is proud to announce their new RSC IAG co-chair, Mark Pollak of Kraft. Mark has much experience in the realm of RFID and will be serving alongside the other RSC IAG co-chair, Dr. Gerd Wolfram, Metro. Their expertise and leadership will continue to drive the RSC IAG to greater RFID adoption.

The RSC IAG is planning to meet at Bonn Joint Action Group meeting in October. The participants will be meeting with many Joint Requirement Groups and the new Interest Group: Liquids and Metals.

Media and Entertainment Interest Group

The Media and Entertainment group, which is composed of the Home Entertainment Divisions of the major Hollywood Studios, their retail customers, 3rd party merchandisers and solution providers, met at the Las Vegas JAG. The group's main focus is the development of an economically viable item level solution that supports multiple supply chain and retail use cases, which if successful, will help to maintain or increase sales in the category.

The group has completed two requirement documents, Metalized O-Rings and Densely Packed Cases. The group has received approval from the Interest Group, the RSC IAG, the BSC and the TSC. Currently, the HAG co-chairs are dividing the work to allocate to the appropriate groups. The group would like to give a special thank you to the document editors Mike MacDonald, Sony Picture Home Entertainment, and Susan Flake, Motorola.

Liquids and Metals Interest Group

This new interest group was created to act as a forum to address implementation and performance issues created by liquid or metal content in packaging and/or products, and to create guidelines for recognized, shared solutions. Other recognized issues might require additional research.

Solution provides, end users, and research centers are encouraged to attend. The open kick off call was held on September 17, 2008 and a F2F meeting is planned on October 8, 2008 during the morning session of the JAG Meeting in Bonn, Germany. Every GS1 EPCglobal subscriber is more than welcome to join this group.

For more information regarding Liquids and Metals Interest Group, please use the following link http://www.epcglobalinc.org/apps/org/workgroup/rsc_iag_lm_ig/

You can also contact Mark Frey at mfrey@epcglobalinc.org or Ray Delnicki at rdelnicki@GS1US.org.

GS1 Healthcare – EPC related activities

Standards development for Healthcare

Bar code and RFID Standards for Healthcare products

The AIDC Application Standards Work Team has set out to develop the global standards for automatic identification and data capture of Healthcare products at all packaging levels and throughout their movements through the supply chain, from finished goods at manufacture to the patient. The work team is currently finalising a draft Application Guideline, which is planned to go into GSMP in October 2008. This will include grids, visualising which product should carry which product data, and decision trees, visualising which carrier and symbology should be used for any given product, that have already been completed.

Traceability from manufacturer to patient

The Traceability in Healthcare Work Team is defining the global solution for traceability in Healthcare to ensure that the business needs of the industry are fulfilled. This includes ensuring global traceability in an efficient, secure and reliable way, addressing restrictive legal requirements as well as authentication from manufacturer to patient and achieving cross-industry interoperability. The work team has recently finalised a draft Global Traceability Standard for Healthcare (GTSH) and submitted it into the GS1 Global Standards Management Process (GSMP). The GTSH is expected to be ratified early 2009. The work team is currently developing an implementation guideline, including case studies and best practice examples.

Amerinet and Premier endorse GS1 Standards

Amerinet and Premier, two leading Healthcare Group Purchasing Organisations (GPO) in the U.S., recently took a leadership role in the adoption of global standards in the U.S. Healthcare supply chain and have endorsed GS1 Standards to enhance patient safety and reduce costs in Healthcare.

California pedigree law: January 2015 under consideration

Earlier this year, the California State Board of Pharmacy had announced a delay in the implementation of the California pedigree law to January 1, 2011, recognising the vast effort it will take for industry to "implement electronic technologies to track the distribution of dangerous drugs within the State."

Throughout the summer, the California legislature has been revisiting the law, whereby the deadline for implementation would not start before January 2015. Another new element is Federal pre-emption of State rules. FDA is mandated by the U.S. Congress to issue standards by April 2010. A pending bill could cause the FDA to write regulations that would pre-empt State Pedigree laws.

Transportation and Logistics Services (TLS IAG)

The Chain of Custody Task Group has defined the import and export processes and document flow for transportation and logistics. Discussions concerning appropriate GS1 identifiers for tractors, e-seals, shipments, and each level of aggregation are currently taking place. Participation from different industries is encouraged and welcomed.

The Transportation and Logistics 3 Pilot Program was kicked off in July 2008 with meetings being held in respectively Tokyo and Amsterdam. A total of 50 containers with goods will be shipped from Tokyo to Amsterdam over a 4 week period of time starting in January 2009. During the third phase of the Pilot Program, our objective is to test the use of active and passive tags in different regulatory environments. Also a passive e-seal will be tested with data elements being incorporated in EPCIS and access to the data being provided to customs organizations.

Marketing and communication materials of the Transportation and Logistics2 Pilot Program can still be downloaded by accessing the following link; http://www.epcglobalinc.org/home/TLS2_Pilot_Program_Presentation.zip.

For more information regarding the Transportation and Logistics IAG, please contact Shirley Arsenault at sarsenault@epcglobalinc.org

Consumer Electronics (CE IAG)

October will mark the first anniversary of the GS1 EPCglobal CE IAG, a milestone that takes place as the group initiate discussions on End Of Life business processes. This will bring CE IAG participants another step closer to making their vision of life cycle tracking for CE products a reality. The Total Product Lifecycle is of utmost importance to the CE IAG and efficient Recycling, Reuse and Disposal processes are cornerstone processes.

CE IAG Round One Requirements Package Delivered

Over the past year, the CE IAG has made enormous strides in identifying their industry specific needs and gathering requirements. Phase one requirements were gathered in terms of Small (laptop computer, digital camera, mobile phone etc.) and Large (plasma television screen, refrigerator) CE products. Requirements are based on High Class (Gold) Products only which means the product requires item level traceability for product safety, recycling, maintenance and repair. The key use cases addressed in our round one requirements were:

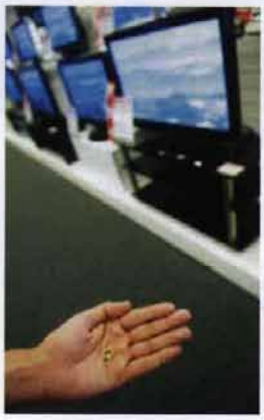
- Forward Logistics - Manufacturer to Customer
- Reverse Logistics - Product Return
- Reverse Logistics - Repair & Maintenance

Requirements were categorized into three different areas in accordance with the GS1 EPCglobal Architecture framework; Identification, Data Capture and Data Exchange.

How EPC/RFID can benefit CE EOL business operations while simultaneously helping the environment

The CE IAG EOL IG will explore ways to ensure more efficient and more economical recycling, reuse and waste disposal processes for CE products. All of this with the aim of reducing the environmental footprint of electronics products and improving business processes. Initial discussions on this subject will take place during the CE IAG meetings at the EPCglobal JAG in Bonn.

Business, Consumer and Environmental Benefits from EPC-enabled Consumer Electronics Products



CE IAG representatives believe that EPC/RFID enabled CE products for total product lifecycle management will only be a success if there is broad consumer and governmental acceptance and agreement. In order to help drive such acceptance, we have compiled the CE IAG Business, Consumer and Environmental Benefits from EPC-enabled Consumer Electronic Products document in collaboration with our EPCglobal Public Policy Director for Europe. This document outlines the business, consumer and environmental benefits in a "policy" friendly way. This document will be used as support material for the EPCglobal policy team which consists of public policy experts from companies who are members of GS1 EPCglobal. If you would like to receive a copy of the document or find out more about any of the CE IAG initiatives, contact Audrey Kremer (Audrey.kremer@gs1.org)

Technical Action Groups

Software Action Group (SAG)

A SAG overview and summary of SAG standards will be presented by David Husak (Reva Systems) and Ken Traub (Ken Traub Consulting) at the JAG meeting in Bonn on October 7, 2008 at 8:30.

Tag Data Translation Standard Working Group

The Tag Data Standard (TDT) version 1.4 is reaching Candidate Status. It will then move on for prototype testing. TDT 1.4 will be in synch with TDS 1.4. This standard represents an implementation of the TDS standard and XML files will be included. These XML define the data structures defined by the Tag Data Standard and cover all the key identities used in GS1 EPCglobal tags.

The Tag Data Standard version 1.5 is coming closer to Last Call Working Draft and presentation to SAG for review and comments should occur in October 2008. This version of the TDS contains TID and User Memory updates. The User Memory updates allow for General Specification Application Identifiers to be used. Additional inputs from the TD2 JRG and GS1 Architecture Committee are being added to this standard. Also, the draft specification will be mapped back to Tag Data JRG requirements and the 60-Day GS1 Architecture Review Report to make it easier for users to zero in on relevant sections more quickly.

ALE 1.1

ALE products that went through beta testing at Metlabs have resulted in some minor errata to be corrected in the Conformance Requirements and it will be made available to subscribers on the GS1 EPCglobal Website at http://www.epcglobalinc.org/standards/ale Look for a 1.0.2 version number next to the Conformance Requirements' title.

Reader Operations WG

The DCI (Discovery, Configuration, and Initialization) specification has completed prototype testing and it is with the Technical Steering Committee at GS1 EPCglobal seeking the next-to-the-last step before Ratification.

This specification helps to automate the updating and maintenance of a network of readers. It specifies initial configuration requirements that an RFID Reader or Client must satisfy, in order for DCI operations to be successful.

Core Business.Vocabulary SAG WG

The Core Business Vocabulary (CBV) Work Group is hard at work finalizing specification that will standardize a business vocabulary for use with EPCIS that is core to all GS1 EPCglobal community industries. The EPCIS specification relies on 'vocabularies' to give events meaning and describing the 'WHAT' 'WHERE', 'WHEN', and 'WHY' of that event .– and this standard will provide for a standard set of vocabulary values – to avoid terminology confusion within and across industries. In addition, an effort to harmonize this work with the GS1 Global Data Dictionary has taken place.

Hardware Action Group

The item-level tagging standards for UHF and HF are reaching the end of the SDP.

- UHF Air Interface 1&2 Work Group solved critical issues concerning backwards and forwards compatibility. The Recommended Specification was submitted to the GS1 Architecture Group for review in May 2008 and will be submitted to the Board of Governors for ratification in July 2008. The Recommended Specification was also shared with ISO/IEC SC31/WG4/SG3 in April 2008.
- HF Air Interface Work Group voted to process their specification as two Recommended Specifications. The WG chose this route to enable the HF work to be available for sharing with ISO/IEC SC31/WG4/SG3. The Recommended Specification #1 was shared with ISO/IEC SC31/WG4/SG3 in April 2008. Subsequently, the HFAI WG has completed the Proposed Specification #2. The goal is to have the second and final Recommended Specification ready for ratification by the Board in October 2008.

Test methods for end-user field applications are being developed in the Performance WG (TLRPP). These include test methods for tags ("Tag Parameter Test Method") and test methods for calibrating/measuring the RF field in door portals

- The TLRPP Tag Parameters & Test Methods v1.1.3 was approved by the BSC and the TSC. The document will now be made available to the GS1 EPCglobal community.
- The Static Test Method v1.9.5 was approved by the HAG.
- To join the TLRPP WG, for the opt-in agreement, please contact the EPCglobal Inc. Help Desk (epcinchelp@epcglobalinc.org).

The Regulatory Affairs ad hoc Committee (RAC) is an active mailing list in the HAG. This ad hoc supports global regulatory work as needed. The RAC is open to all Subscribers of EPCglobal in good standing. To join the mailing list, please click on the following link and follow the instructions to self-add: http://www.epcglobalinc.org/apps/org/workgroup/hag_ad_hoc_regulatory/index.php. If you are experiencing problems joining this Committee, please contact the EPCglobal Inc. Help Desk at epcinchelp@epcglobalinc.org.

For more information on activities in the HAG, please contact the HAG facilitator Giselle Ow-Yang at gowyang@epcglobalinc.org

Missing Identification Resolution Group

A new Cross GS1 Group, the Missing Identification Resolution Working Group, was recently created. In implementations of serialized item level identification, when an identification unit, a tag or a barcode, gets lost or in the case of RFID the tag no longer responds, the party downstream from the source does not have clear direction on how to manage it back. In addition, when the source is not interested in serialized identification of items but further downstream there is a need for serialized identification, then parties upstream will have difficulty making sure that the serial number is unique. This Work Group project will produce an implementation guideline that will include problem statement, use case scenarios, and a recommended option to address missing identification. The implementation guideline can be used by any company using or thinking to use GS1 Identification via EPC tags or GS1 Barcodes.

For further information, please contact the facilitators: Ilteris Oney at ilteris.oney@gs1.org or Sylvia Stein at sylvia.stein@gs1.nl.

Book Industry

GS1 and ISBN have enjoyed a working relationship for nearly 30 years. A contract between GS1 and ISBN enabling to represent an ISBN in an EAN-13 bar code was signed in 1980 and renewed several times since then. We are currently investigating with ISBN technical and contractual solutions required to implement the ISBN number into the EPC numbering scheme, given the high interest demonstrated by the book sector to RFID technology in several countries.

Hong Kong RFID Awards Results Released

Application submission for the first ever Hong Kong RFID Awards was ended on 6 June 2008 with quite a number of nomination papers received, covering a wide range of EPC/RFID implementations including RFID library, laundry system, fleet management, warehouse management, smart retail etc. The awards are established to recognize pioneers in successfully implemented EPC / RFID technologies in their business operations, to foster and accelerate EPC/RFID adoptions in Hong Kong and Pan Pearl River Delta Region and to nurture the development of EPC / RFID applications.

There are three award categories:

- Best EPC/RFID Implementation
- Most Innovative Use of EPC/RFID
- Most Innovative EPC/RFID Products

A total of 18 cases were short-listed to enter the assessment stage on 25 July 2008 and the Gold, Silver and Bronze awards for the three categories were finally selected. An award presentation ceremony will be held at the GS1 Hong Kong Supply Chain Excellence Summit on 10 October 2008 to recognize the outstanding achievements of the winners in EPC/RFID applications.

For details of the awards assessment results, please visit http://www.epcglobal.org.hk/modules.php?name=Content&pa=showpage&pid=197

GRIFS organises workshops to build the Global RFID Standards Forum

The Global RFID Interoperability Forum for Standards (GRIFS) is a Support Action Project coordinated by GS1, ETSI and CEN and funded by the European Commission with the aim to improve collaboration and maximise the global interoperability of RFID standards. Since its start in January 08, the main objective of the GRIFS project is to build a Forum of collaboration between key stakeholders and thus to contribute in the global alignment of RFID standards development.

Objective of the workshops

In order to create the GRIFS forum, a series of 5 preparation workshops are currently being organised in Europe, Asia and North America in order to get feedback on the future structure of the Forum as well as the Memorandum of Understanding that will frame it. Organised with the support of the local GS1 organisations, the workshops are looking to identify the topics and stakeholders required for the future GRIFS Forum. By the end of the 5 workshops we expect to have reached an agreement on the organisation of the Forum and have the commitments of the targeted stakeholders to participate. It is planned that the Forum members will start to meet formally in May 2009.

Regional workshops for international standardisation

After a successful first Open Day meeting held in June 2008 in Brussels that provided an overview on the global RFID Standards Situation and the challenges the RFID standardisation is currently facing, a workshop was organised last week in Tokyo, Japan, with a focus on data standards, data encoding and protocol standards. This workshop welcomed around 50 participants who had the opportunity to hear about ISO, GS1 and Ubiquitous ID Centre perspectives on these topics. A discussion was led in the afternoon on the development of the Forum and enabled to identify the most crucial areas of collaboration.

In a few weeks, the workshops will continue in San Diego on 20 November 2008 with a session focusing on Air Interface Standards, Sensor Standards, Conformance and Performance Standards. On December 4, 2008 a workshop will be organised in Hong Kong with a focus on Industry Application Standards and Real Time Location. A last workshop will take place in Brussels on 19 February 2009 highlighting Frequency Management Standards, Health and Safety Standards, Environmental Standards, Data Protection & Privacy Standards.

These workshops will give the opportunity to the audience to also give inputs on their challenges regarding international standardisation and their needs for the future Forum of collaboration.

For more information on the GRIFS project and the workshops, visit http://www.grifs-project.eu or contact info@grifs-project.eu

Upcoming Events

GS1 EPCglobal Events

- Joint Action Group Meeting, 6-10 October, 2008 Bonn, Germany
- Internet of Things, Internet of the Future, 6-7 October, 2008 Nice, France
- EPC Connection, 14-16 October, 2008 Chicago, USA
- The Third RFID HP Symposium, 22-23 October, 2008 Sao Paulo, Brazil
- European EPC Conference/RFID Journal LIVE! Europe, 4-6 November, 2008 Prague, Czech Republic
- Joint GSMP & JAG Event, 23-27 March, 2009 Los Angeles, USA

Visit http://www.epcglobalinc.org/events for more information.

Other GS1 Events

- GSMP World Wide Fall Event 2008, 6-10 October, 2008 Washington, USA
- GS1 in Europe Regional Forum, 15-16 October, 2008 Nice, France
- ECR Asia Conference 2008, 15-17 October, 2008 Bangkok, Thailand
- GS1 Asia Pacific Regional Forum, 20-22 October, 2008 Melbourne, Australia
- GS1 Healthcare Conference, 28-30 October, 2008 Tokyo, Japan
- GS1 MEMA Regional Forum, 13-15 November, 2008 Dubai, UAE
- GS1 Global Forum 2009, 16-20 February, 2009 Brussels, Belgium

Visit http://www.epcglobalinc.org/events for more information.

GS1 EPCglobal Newsletter Publication

If you have ideas to improve this newsletter, or article topics you would like to suggest, please contact Karl Van der Spiegel at karl.vanderspiegel@gs1.org

GS1 EPCglobal Subscriber's Website Tips

Did you know that you can view all employees from your company that have access to groups and what groups they are involved in? Login to http://www.epcglobalinc.org, click on "My Groups", look midway down the page for "my company's members", click on the + next to their names to view their groups.. If you notice someone listed who has left your company, please notify the EPC admin at epcinchelp@lists.epcglobalinc.org.

Getting too many emails from groups you are not interested in? You can unsubscribe yourself from these groups, but still remain a member of the group. To do so, go to "my groups", click on the "email" tab, click unsubscribe next to each group you no longer want emails.

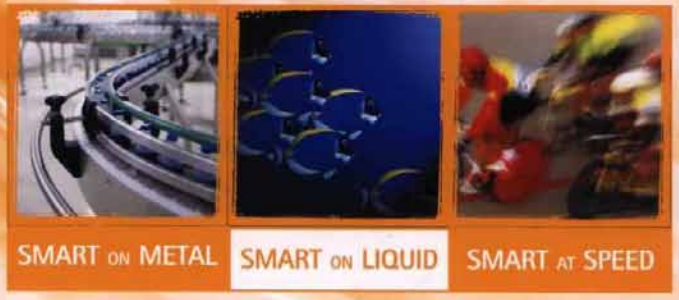
附件五

應用在金屬材質的 13.56 百萬赫茲無線射頻辨識系統標籤

(FXT on Metal Screw Box—RFID at 13.56MHz)

FERROX TAG

FXT on Metal Screw Box



SMART ON METAL | SMART ON LIQUID | SMART AT SPEED

RFID

(13.56 MHz)

FXT on metal screw box

Ferroxtag is a new family of RFID (Radio Frequency IDentification) tags suitable for operation attached to metallic items, such as totes, barrels, gas cylinders and industrial equipment. Operation frequency is 13.56 MHz. Ferroxtag's key feature is the direction of the field activating the device: it is not perpendicular to the identified item but parallel to it; this means that the performance is almost independent of the material of the item identified. No need to worry about electromagnetic reflection on metals.

The Ferroxtag core is an outstanding high magnetic permeability ferrite material that enhances the performance of the winding, thus reducing the dimensions of the coil.

Product description

Ferroxtag on Metal Screw Box is a High Frequency (13.56 MHz) RFID tag optimized for identification of metallic items. It can be screwed to the item and/or stuck on it with the bottom side adhesive tape.

Supports ISO15693 and ISO18000-3 air interface, being the reading range 30 cm on metal.

Overall dimensions are 25 x 12.5 x 5 mm, including the holes for screws.

Mechanical properties	
Operating temperature	-25°C to 130° C
Dimensions	25 x 12.5 x 5 mm
Weight	2.5 grams
Case material	POLYAMIDE 66 UL94-V0 compliant sealed with epoxy resin
Degree of protection	IP68
Colors	Black, blue, brown, beige
Clamping to items	Screws, glue, double sided adhesive tape

Ferroxtag mechanical properties make this product ideal for metal container and metallic items identification.
The encapsulation protects the device against impacts and harsh environments, making it suitable for industrial applications.

FERROX«TAG»

FERROXCUBE

Tag installation

It is recommended to install the tag on a corner or in the closest position to the reader antenna. Optimal performance is achieved by orientating the device towards the reader as shown in the figure.
The package protects the electronics from harsh conditions, like extreme humidity, and maximum continued temperatures of 130°C, and peaks at 250°C for short periods.

Functional properties	
Operating frequency	13.56 MHz (ISM, licence free)
Air interface	ISO15693, ISO18000-3
Unique identifier	8 bytes
EEPROM memory	1024 bits, 32 blocks x 4 bytes
Anticollision supported	Yes
Data transfer	Up to 53 kbits/sec
Reading range on metal	30 cm (typ for 4 watts reader)

Ferroxtag is ISO15693 compliant, so it can be read and written with most common HF readers.
The outstanding reading range in such a small package combined with the ability to work around metals makes Ferroxtag an ideal alternative for both low and high frequency tags.

FERROX«TAG»