

# **2<sup>nd</sup> Canadian RFID Conference**

*SHARING THE FACTS; DISPELLING THE MYTHS.*



**"Tracking the Evolution of RFID Technology and its Applications"**

Two Day Conference ♦ April 19-20, 2005

♦ Le Parc, Markham Ontario

Workshop:

RFID in the Healthcare Industry

Taking RFID from Possibility to Reality



## Moderator:

Roxanne Hysert, Regional Sales Mgr. R.  
Moroz Ltd. RFID Canada

## Speakers:

Kelly Stark, Healthcare Business  
Development, Texas Instrument

Rob Ryckman, Director of Marketing &  
Product Development, CCL Label





Kelly Stark

Healthcare Business Development  
Texas Instrument



---

# *Benefits of RFID in Healthcare*

“What’s Real and What’s Next?”

**Kelly Stark**  
**Business Development**  
**Pharmaceutical and Healthcare**  
**TI-RFid Systems**



## Today's Discussion



- Driving Issues
- REAL RFID applications in Healthcare
- Case Study: Emergent Health



# Driving Issues in Pharma and Healthcare

- Hospital Inventory Management
- Tracking Temperature sensing & expiration date.
- Product Authentication & process control to ensure proper sterilization, refrigeration, etc.



**Medical Device Suppliers**



**Suppliers**

- FDA Pedigree Requirements
- Anti-counterfeit & gray market security.
- Demand visibility
- Returns & Shortages



**Wholesalers**

- Control inventory management for manufacturer.
- Pedigree Requirements
- Inventory status for CII drugs

- Patient Safety is #1
- Meeting HIPAA & JHACO regulations
- Asset Tracking for nurse efficiency.



**Hospital Providers**



**Pharmacies**

- Pharmacist Shortage & prescription overflow
- Inventory status for CII drugs
- Expiration Checks
- Returns
- Inventory Availability

Source: Bearing Point Life Science & TI interviews



## Case Study: Anti-counterfeit



**Business:** MRI film cartridges

**Goal:** Quality control for x-ray film.

**Tagging Level:** Film cartridge level, HF

**Benefit:** Manufacturer can assure no counterfeit film is used and guarantee supply for film.



## Case Study: Clinical Trials

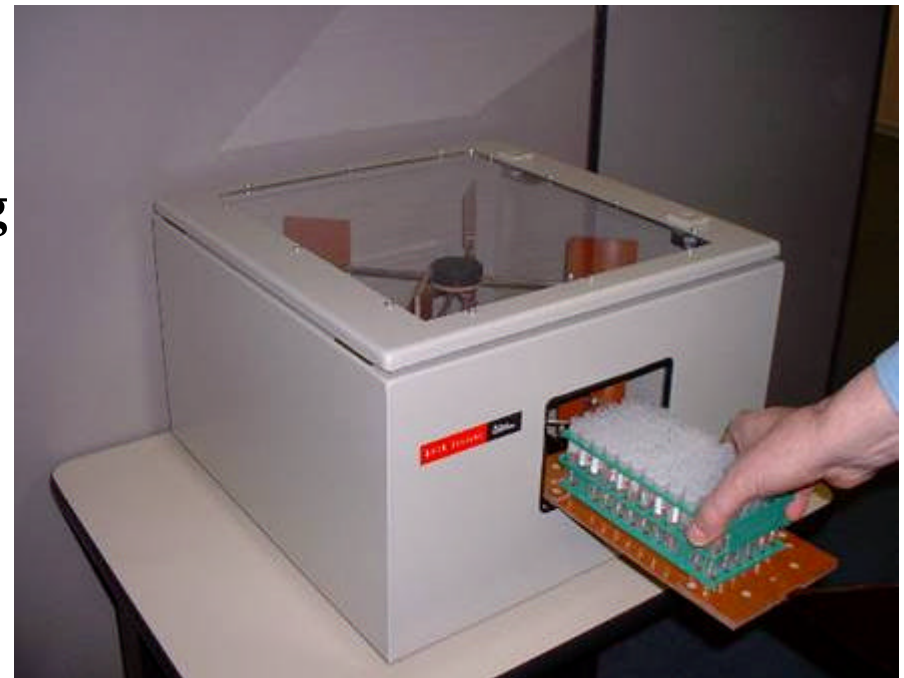


**Business:** Major Pharmaceutical Company

**Goal:** Increase accuracy in tracking pharmaceutical test tubes (72 tubes per box for drug development.)

**Tagging Level:** Item, HF

**Benefit:** Reduced time and handling for chemicals and increased accuracy to 100% for last 3 years. Cost saving by decreasing time to market for clinical trials and meeting FDA & intercompany regulations for tracking test chemicals.



# Case Study: Patient Safety



**Business:** Upstate NY Specialty Care  
**Hospital:** 2000 Employees, 135,000  
**Outpatient Visits,** 23,000 Patients Under  
**Active Care.**



**Goal:** Faster, better, safer patient  
experience. Key is not to overhaul entire  
security system or have multiple cards,  
want to phase in **RFID** applications;

**Tagging Level:** Personnel and patients,  
**HF.**

**Benefit:** Faster and automatic patient  
check-in. Confirmation of patient and  
drug according to FDA ruling.

## **More Benefits:**

- ID card application for Staff
- Time and attendance
- Debit cards for cafeteria
- PC security
- Medical record tracking



## Case Study: Patient Safety (Iraq/USA)



**Business:** US Hospitals and US Navy

**Goal:** Increase Patient Safety by identifying patients and store their details and treatment regime.

**Tagging Level:** Tagging patients with wristbands, and sometimes tagging medication, HF

**Benefit:** US Navy uses system to track status & location of wounded soldiers, pows, and refugees. Biggest convenience with language barriers.



## Case Study: Inventory Control



**Business:** Mobile Aspects  
Integrator for hospital  
application.

**Goal:** Control stocking levels  
of consumables in busy hospital  
environment.

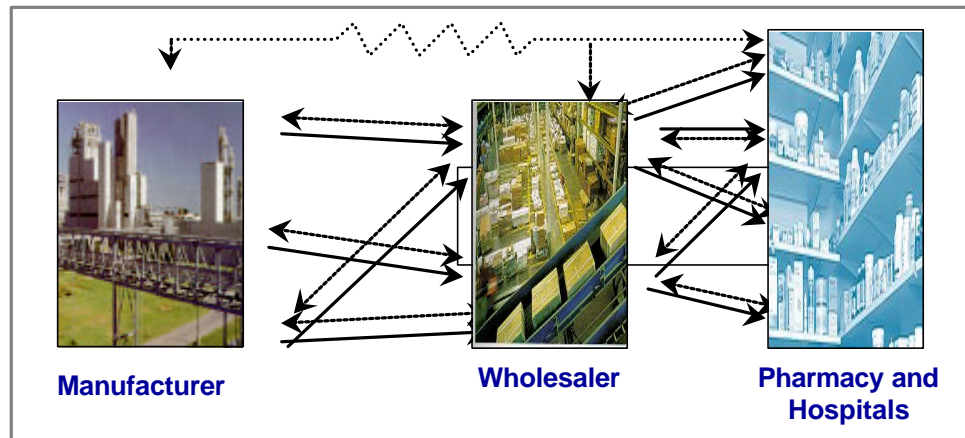
**Tagging Level:** Item, HF

**Benefit:** Proactive management  
of on-shelf availability ensured  
inventory availability for must  
have medical equipment. Sales  
increase and reduction in  
returns due to expiration date.

**ROI < 8 months**



The objectives for the EPC in Pharmaceutical is to provide a method to store electronic pedigree for drugs and reduce risk of counterfeit drugs.



**Proposed Technology**  
**EPC UHF for Pallets/Cases**  
**EPC HF for item level**

•EPC can drive business value by:

- Satisfying increased regulatory requirements for Pedigree
- Satisfying increased retailer requirements
- Increasing product security and consumer safety
- Increasing efficiency of returns and recalls
- Increasing labor productivity
- Increasing order accuracy
- Increasing supply chain information visibility

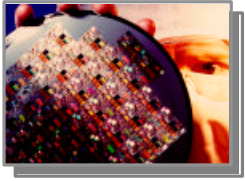
# RFID What's Real and What's Next



## In Conclusion:

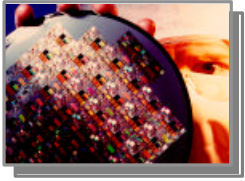
- RFID is real, reliable and accurate
- TODAY companies are leveraging RFID to drive significant business value through increased sales and profits
- Healthcare has significant areas where RFID shows ROI:
  - Patient Safety and Experience
  - Anti-Counterfeit
  - Inventory Management
  - Staff Performance
  - Quality of Care
  - Efficiency & lower costs
- It's time to get started!





Rob Ryckman  
Director of Marketing & Product  
Development  
CCL Label

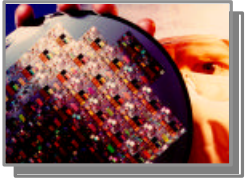




# Why Use RFID?

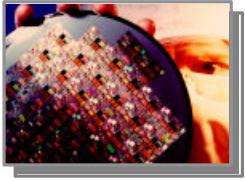
RFID offers many potential benefits depending on the application where it is deployed

- Product authentication
- Diversion control
- Portable database
- Inventory management
- Access control
- Payment automation
- Efficiency of data collection



## Benefits of RFID

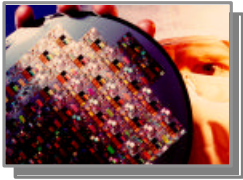
- Indirect line of sight , more efficient than bar codes.
- Multiple reads at the same time.
- Able to add more information to the tag at a later date.
- RFID is best when used in combination with other technologies for the highest level of security.



## Driving Demand

Early adopters driving the demand

- Marks & Spencer, Tesco , Wal-Mart
- Gillette , Proctor & Gamble
- J&J , Purdue , Pfizer , Novartis
- FDA encouragement
- Department of Defense

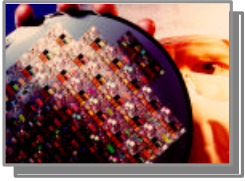


## RFID Standards

- Currently there are over 10 established standards for different industries .
- Currently there is not one single developed standard for all applications and it is not likely to be.

### Most Common Standards

- ISO Standards – 14443, 15693
- EPC – Class 1 , Class 0 , 0 plus, Class 1g 2

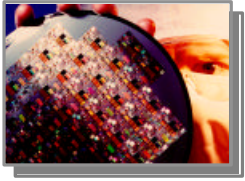


## Market trends

Bar codes are only recently becoming widely used in the healthcare and pharmaceutical industries.

Widespread adoption at the item level is common on OTC and retail products.

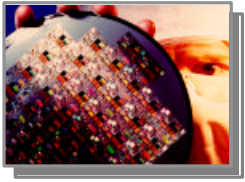
Most Hospitals and pharmaceutical supply chains currently use bar code enabled systems today .



## Market trends

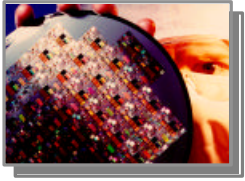
Currently many pharmaceutical companies are using ISO 15693 RFID at the item level because it is accepted globally and widely available . In the US there is some UHF applications currently driven by Wal-Mart.

Depending on the application some RFID products will function better at HF than at UHF frequency ranges, however each application is unique .



# Finding the Right tag





# RFID Packaging Challenges

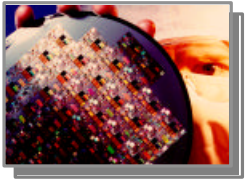
Finding the right RFID system for your application . The system must include all the necessary hardware , software , tags and integration into current systems.

Finding tags that will work in the application . What is the right frequency , size and features. What is the right location in the packaging to support fast accurate read rates .

Packaging the tags to survive in the application , certain conditions may effect the tags ability to survive long term.

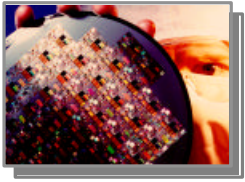
Having a system that works with your customers , end users and the rest of the supply chain .



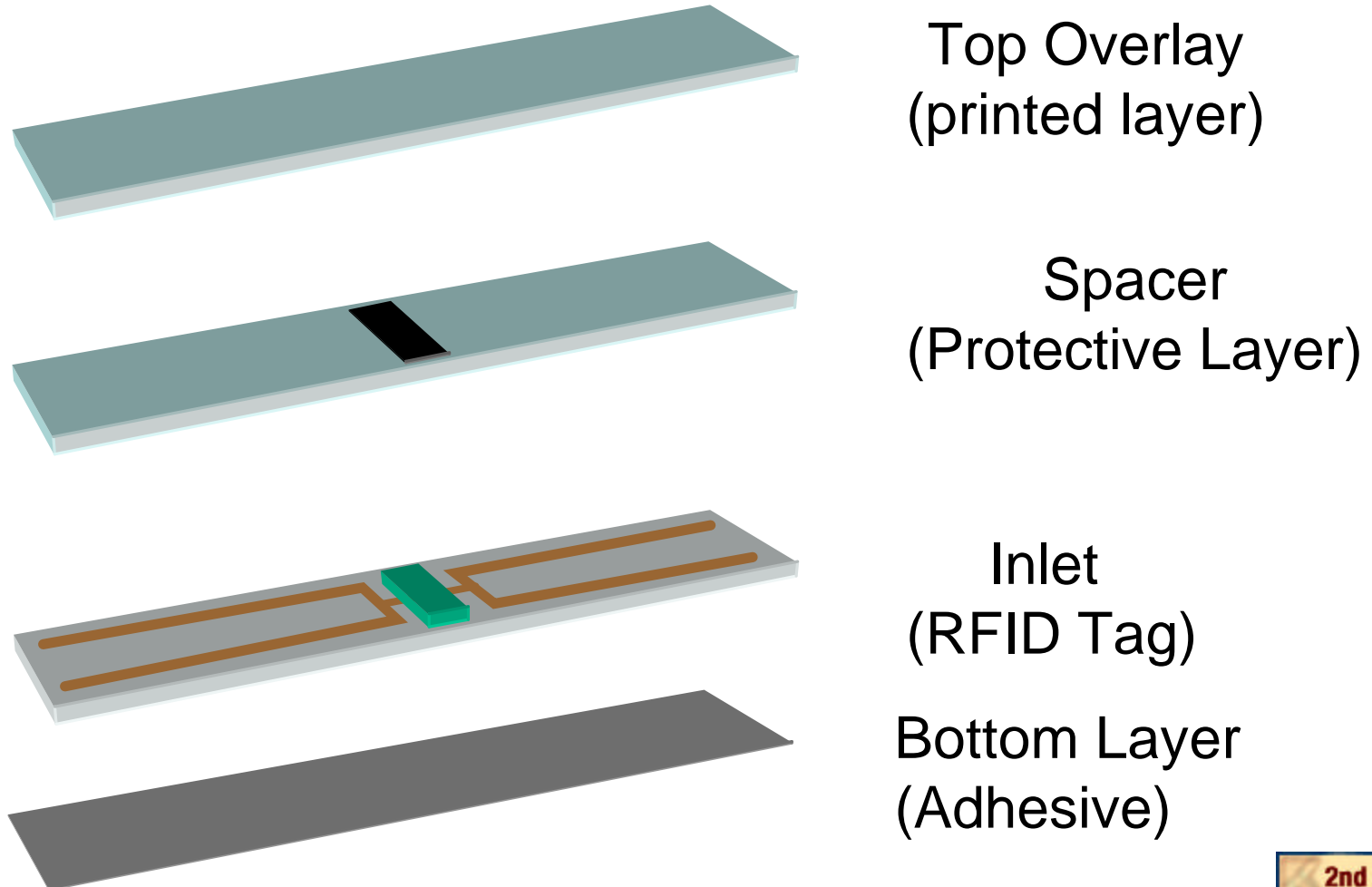


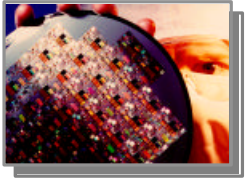
## RFID Tags - Today

- In most cases tags come in role form as a raw material consisting of an antenna made of etched copper or aluminum with a chip attached.
- In most cases the tags will need to be converted in some way to make them usable .
- These tags can be made into labels , tags , cards or wristbands to suit the application
- In most cases adhesives and lamination layers are added to make the tag suit the end use or environment.



# Sample Construction

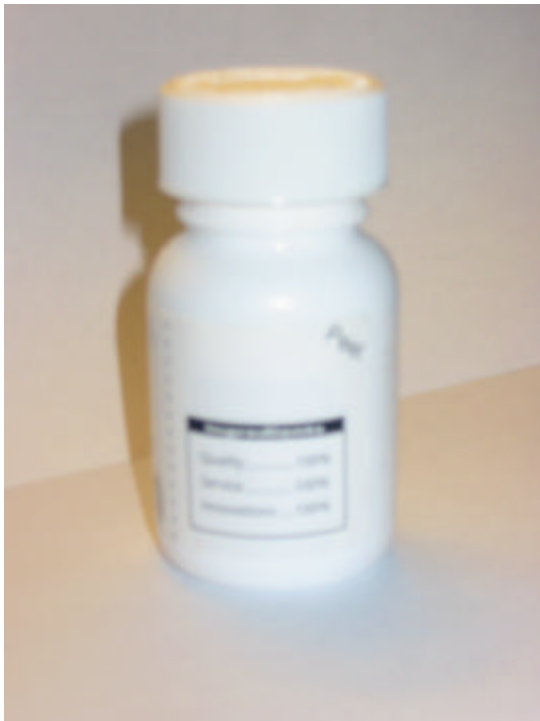




## RFID Tags - Tomorrow

- Printed antenna with chip or strap attached .
- Migration away from etched antenna to a printed antenna offers a lower cost tag in high volumes .
- Development of higher speed chip attachment manufacturing lowers cost.
- Production of billions of tags , smaller and faster.
- Reduction in the number of steps lowers costs.

## Consumer / Patient Privacy

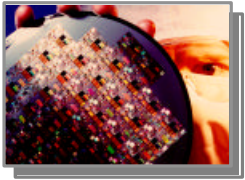


Removable Tags

## Consumer / Patient Privacy



Removable Tags



# RFID Tag Providers

- Alien Technologies
- Avery Dennison
- Infineon
- KSW Microtek
- Matrics
- Omron
- Phillips
- Rafsec
- SCS – Single Chip Systems
- Tagsys
- Texas Instruments



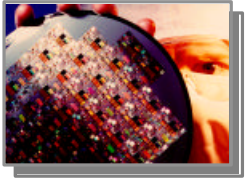
ALIEN.



**MATRICS**<sup>®</sup>

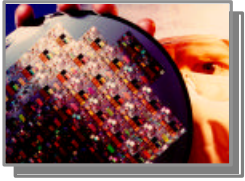
**OMRON**<sup>®</sup>





## In Conclusion:

- RFID is reliable , fast and accurate.
- RFID has many benefits including saving lives



# Thank You

# **2<sup>nd</sup> Canadian RFID Conference**

*SHARING THE FACTS; DISPELLING THE MYTHS.*



**"Tracking the Evolution of RFID Technology and its Applications"**  
Two Day Conference ♦ April 19-20, 2005  
♦ Le Parc, Markham Ontario

## Questions?