RFID Tracking for Asset Management and Compliance Support
Agenda

• Introductions
• Market Challenges related to Location and Movement Technology
• RFID Technology Overview
• RFID Sample System Overview
• RFID Sample System Demo
• Q & A Discussion
Speakers

Doug Paradis
• CTO Veltek Associates

Kevin McMurtrie
• Global Business Manager – RFID Solutions Veltek Associates
## We See Challenges in the Market

<table>
<thead>
<tr>
<th>Equipment Loss</th>
<th>Safety</th>
<th>Time Loss</th>
<th>Product Loss</th>
<th>Compliance Failures</th>
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<tbody>
<tr>
<td>Organizations are challenged to locate key pieces of lab equipment&lt;br&gt;Expensive items are lost every day leading to high replacement costs and lost time</td>
<td>Challenges in identifying personnel location&lt;br&gt;Tracking key resource path patterns to improve safety for critical facilities</td>
<td>Locating equipment continuously drains time from valuable resources&lt;br&gt;Maintenance, service and calibration windows can’t be identified, wasting time to locate out of service assets</td>
<td>Using equipment that is out of a PM or calibration windows leads to product waste&lt;br&gt;Inability to find batch records prevents release&lt;br&gt;Eliminate manual entry errors</td>
<td>Data integrity failures&lt;br&gt;Service, PM and calibration procedures are not followed and tracked causing risk of warning, writeup, or observation and the huge response efforts</td>
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Have you ever experienced any of the following:
○ Can Solve
  • Asset/Personnel Location Tracking and Identification
  • Compliance Auditing
  • Asset
    • Preventative Maintenance
    • Calibration Cycle Management
    • Out for Service Status
RFID Technology

RFID 101

○ 4 different types of RFID:
  • **Low Frequency (LF)** which is 125 KHz – Older technology used in access control and some animal tracking
  • **High Frequency (HF)** which is 13.56 MHz short read range, secure – Broken down into two different ISO/IEC standards: ISO/IEC 15693 chip manufacturers examples: Texas Instruments (TI) Tag-It or NXP with their iCODE SLI/SLIX
  • **ISO/IEC 14443A** chip manufacturer: NXP with their Mifare product line (Ultralight, Ultralight-C, Classic or DESFire)
  • **Ultra High Frequency (UHF)** which is 860-960MHz ISO/IEC 18000 6C GEN 2 - Mainly for long read range

○ Vast majority of the world uses either HF or UHF
  • Both LF and Microwave are too specialized
UHF – RFID tag of choice in most pharma
- Can be read up to 50 feet, the larger the inlay, the longer the read performance
- Inlay: the combination of an antenna printed or etched onto polyester (PET) with a UHF RFID chip attached
- Specialized UHF readers available

Specialized UHF readers
- Can be handheld or fixed mounted
- Handhelds have less energy than fixed mounted readers which translates into longer readings from fixed mounted readers
Asset and location software enables tracking:
- Asset Location Identification
- Alarms for asset entry/exit
- Service Intervals, Maintenance
- Calibration Cycles

Cellulose free RFID Tags

Automated notifications & alerts

Cloud or on-premise solutions that are 21 CFR Part 11 and EU Annex 11 compliant
Tags come in a variety of sizes and styles

Tags can be attached to assets in different ways

- String Tags
- Laminated Hole Punched Tags
- Adhesive Tags/Labels
- Stainless Steel Tags
Batch Record tracking
Readers

Fixed and Mobile
Fixed Reader

Stainless mounting example
Poll

○ What types of assets would you consider tracking:
RFID Software Tracking

- Highlight critical / actionable information
- Overview of the total assets
- Show status within asset Service Request / Preventive Maintenance and Calibration cycle
- Displays Recent Activities
Full Lifecycle Asset and Location Management

- Quick visual cue of asset status
- Displays additional detailed asset information
- Start Complete and Approve service status for SR/PM and Cal.
- Detailed asset activity tracking and log
- Add notes and review prior notes about this asset
- Associated Parts
Facilities Tracking

- Facility view is filterable by building floor and room
- Displays Asset counts with current status
- Map is clickable and interactive
- Displays easy & quick asset type and status information
Mobile Scanning

- Scan Room-by-room
- Reads available via export or integrations with Core2Scan
- Read seamlessly integrate with fixed reader data
Demo
Sample Room Placement

- Fixed Reader
- Reader Addtl Antenna
Poll

- Which department(s) do you think would benefit from RFID tracking:
Reference Software Architecture

Client Corporate Network

Web Client

Corporate Net
[No connection to Reader Net]

SSL Connection

Firewall

SSL Connection

Firewall

Management Subnet
[Optional Recommended]

Reader Subnet

POE Switches

Readers x 150

10.xx.xx.xx/zz

10.xx.xx.xx/zz

Web Tier

App Services

Managed Database

Cloud Tenant

SSL Connection

Web Tier

App Services

Managed Database

10.xx.xx.xx/zz

Veltek Associates Inc. – Company Proprietary Information
Case Study
Pharma Example

• Challenge:
  • Locating valves and other assets critical to the production process
  • Spending too many man-hours tracking down assets that needs PM or calibration
  • Knowing if a specific valve is even in the building

• Solution:
  • Strategically placed RFID readers that can identify a valve's last known location
  • Valves tagged with cleanroom-ready RFID tags that can withstand sonication, autoclaving, and exposure to harsh chemicals

• Results:
  • Asset read rate percentage consistently exceeded 98%
  • Critical asset location activities were dramatically reduced
Submit questions via:

- Scan the QR code
- Go to www.pigeonhole.at
- Enter passcode PDA0617

Join Q&A
Improving Operations with RFID - Questions & Answers