RAIN RFID Source Tagging in Industrial Manufacturing

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Voyantic
Speaker

Juho Partanen
18 yrs in RFID
15 yrs in Voyantic Ltd
12 yrs BOD positions

Drives industry collaboration
Voyantic in a Nutshell

- **De facto** industry **standard** for RFID quality and performance testers
- Established in **2004** in Finland
- More than **1000** test systems delivered
- Customers in **35** countries
- **Over 90%** of biggest RFID companies* use Voyantic systems
- **Over 500** references in academic articles**

*IDTechEx market report: RFID Forecasts, Players and Opportunities 2018-2028
**https://scholar.google.com/scholar?hl=fi&as_sdt=0%2C5&q=Voyantic+Tagformance
Our mission is to help companies to excel in RFID. Voyantic is the only company in the world specializing into 100% performance and quality of RAIN RFID and NFC tags from R&D to manufacturing and deployments.
RFID covers several technologies where radios are used to identify objects.

UHF RFID
Refers to one of the frequency bands.
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RAIN
Uses the ISO 18000-63 or GS1 EPC UHF Gen2 air interface protocol.
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UHF RFID
Refers to one of the frequency bands.

RAIN
Uses the ISO 18000-63 or GS1 EPC UHF Gen2 air interface protocol.

EPC
GS1 numbering system.

UID
ISO Numbering system.
Presentation outline

• Company in Brief & Terminology
• Smart label manufacturing process
• Implementing source tagging
• What Voyantic can do for You
Steps to Create a Smart Label

1. **Chip attach**
2. **Converting**
3. **Personalization**
4. **Apply on an item**
Traditional division of responsibilities

Chip attach

Converting

Personalization

Apply on an item

Tag supplier handles

Item manufacturer handles
Going forward things change

Chip attach

Converting

Personalization

Apply on an item

Tag supplier handles

Item manufacturer handles
Creating smart items

1. RAIN IC module
2. Embed RAIN module on an item
3. Personalize the smart item

Tag supplier handles
Item manufacturer handles
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Why Source Tagging?

Dynamic supply and demand network
Why Source Tagging?

If the last node applies RAIN technology, earlier nodes cannot take benefit.

Cost of tagging and ROI falls on the last node.

As of today, the “laptop customers” have only limited possibility to take advantage of RAIN.
Why Source Tagging?

If the product is RAIN-enabled by the manufacturer, then all the nodes after manufacturing can take benefit of RAIN technology.

Cost of tagging is likely to go down due to larger tagging volumes and efficiencies in industrial manufacturing.

The whole distribution chain becomes more efficient. Everyone wins.
Source Tagging Must Be Managed

In the automotive industry, source tagging is already spreading among component suppliers.

One complex subassembly, such as a car bumper, may have multiple tags.

To avoid electronic duplicates, low read rates and tag flooding, RAIN implementations should follow standards and best practices.
The actual life of an smart item starts after it is sold and delivered.
**RAIN-enabled item should have**

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<th>Your specs:</th>
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To get it right, utilize standards

Your specs:
- Correct visual data
- Correct electronic data
- Correct security
- Correct readability
- Correct life-time

UID ISO/IEC 29161
LOCK PERMALOCK Password management
GS1 TIPP
AS5678 ISO/IEC 20909 ARC

RFIDJOURNAL VIRTUAL EVENTS
Voyantic
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- What Voyantic can do for You
# What Voyantic Can Do For You

**Your specs:**

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- **UID ISO/IEC 29161**
- **LOCK PERMALOCK**
- **Password management**

Understand requirements, create specification, implement
And How Do We Do It?

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Reelsurance Pro
Reel-to-reel label finalization machine
And How Do We Do It?

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Bendurance
Automatic label stress tester
We can also RAIN-enable Your Machine

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Your Machine, with Voyantic Ensurance Produces Your Products
Recap from 2019: 3 Ways to Scale Up the Production of RAIN-enabled Products

- Merge several process steps in one machine
- Increase machine throughput
- RAIN-enable existing manufacturing machines

How to Scale RAIN RFID Tagging via Existing Equipment – Three Ways to Improve Productivity and Increase the Volume of Tagged Product

This year is likely to bring RAIN-RFID connectivity to more than 20 billion items. This represents impressive volume, but the penetration rate is still below 10 percent—even in the retail market segment. For the RAIN RFID industry, this presents...
A few pointers forward:

• Voyantic Blog
• Get a copy of “What is RAIN RFID“ eBook
• Connections Summit in Helsinki June 2021

REACH OUT TO US WITH YOUR REQUIREMENTS, AND WE SHALL CREATE A PROPOSAL FOR YOU!
THANK YOU