radio-itag® - How radiotag Prints and Encodes Individual RFID Tags at Multi-lane Speed

radiotag RFID Laser Label Publishing

A jointed development of Voyantic and radiotag

Jochen Renfordt – MD & Co-Founder of radiotag
Today’s Presentation

- Digital printing of UHF labels
- Why the market is changing
- radiotag’s offer
- Label cost
- radiotag’s product line
Digital printing of UHF labels

- Thermal
- Inkjet
- Laser
Digital printing of UHF labels

- **Thermal**
  - Not so fast – ard. 60 labels per minute
  - Single lane mostly
  - Expensive in consumables
  - Short consumable running period
Digital printing of UHF labels

- **Inkjet**
  - Fast
  - B&W or Colour
  - Single lane mostly
  - Expensive as single lane
  - Experienced operator required
Digital printing for UHF labels

- **Laser – Continuous Feed**
  - Continuous feed proven in the market
  - Now available as RFID multi-lane
  - Fast and reliable
  - No guesswork of pricing a print job
  - Colour is an option
Digital printing for UHF labels

- **Laser – Cut Sheet**
  - B&W or colour cut sheet laser and radiotag RTU
  - Heavy media solution, e.g. thread tags
  - Now available as RFID multi-lane
  - Fast and reliable
  - Cut sheet RTU and cut sheet feeder as option
Why the Market is Changing

- Market - from mass to unique products
- Tracing - Production, logistics & recycling
- Label production - Central to local
- Quantity - From long runs to short runs
- Technology - From analog to digital
- RFID labels getting popular – 200 BN in 2025
Why the Market is Changing

- Individual RFID labels will take off
  - Apparel
  - Aviation IATA bag tags
  - Automotive
  - Logistics
radiotag‘s Offer – How Does it Work

JEI 1865R

RTU4

RFIDJOURNAL VIRTUAL EVENTS
radiotag’s Offer – How Does it Work

- How the system is built
  - JEI 1865R continuous feed laser printer
  - Label printing calculation software
  - Professional Label Edition Software
  - RTU transport engine
  - Multi-lane encoding and verifying engine
radiotag‘s Offer – How does it Work

Create label by label software

radiotag GmbH
RFID Embedded Label
490000100001
00001

Label software File (Label.btw)
radiotag‘s Offer – How does it Work

Create variable data

![Diagram showing process of creating variable data]

1. Create variable data
2. Encoding Data
3. Printing Data

variable.csv
radiotag’s Offer – How does it Work

Merge CSV file with label design

Label.btw

BarTender®

BY SEAGULL SCIENTIFIC

variable.csv
radiotag’s Offer – How does it Work

Printing and Encoding Workflow

Input Data
Label Design
Variable Data
Print Configuration
Printer Driver
Printing
RFID Configuration
Encoding
RFID controller GUI
Log File

Label.btw
variable.csv

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Printing and Encoding Workflow

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radiotag‘s Offer – How does it Work

- Requirements in production
  - Small footprint
  - Easy job changes
  - Less waste
  - Throughput increase
  - Affordable investment
radiotag’s Offer – How does it Work

- Requirements in production
  - Open for various label and tag designs
  - No tools needed for different jobs
  - Label recovery for corrupted labels
  - radio-itag© - single pass read, write, verify, bad tag mark & recover
LABEL COST

Page size: 330 mm x 12”
Lanes: 4
Label size: 80 x 45 mm
Labels per page: 24
B/W ratio: 14.87%
Label volume: 400 Million
Labels per minute: 1,100
Cost per label: ard. 0.0015€
LABEL COST

Page size: 431.8 mm x 12”
Lanes: 8
Label size: 48.3 x 37.8 mm
Labels per page: 56
B/W ratio: 18.21%
Label volume: 800 Million
Labels per minute: 2,570
Cost per label: ard. 0.00088€
radiotag’s Product Line

- RFID Laser Label Publishing – 4 Lanes
- RFID Laser Label Publishing – 8 Lanes
- Stand-Alone Encoding – 4 & 8 Lanes
- Retrofit 4 & 8 Lanes Encoding
- Cut Sheet 4 Lane Encoding
radiotag’s Product Line

- Build to order
- Label layout analysis
- Supply of shielding plates
- Customer specified Site Acceptance Test
- Commissioning
Information & Inquiries

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THANK YOU