



EPAL EPC/RFID Project Update



EPAL Pallet system



The ideal worldwide logistics solution

Agenda

- 1. Introduction & vision**
- 2. Project organisation**
- 3. Presentation of the EPAL RFID system**
- 4. Standardisation activities**
- 5. Conclusion**

EPAL



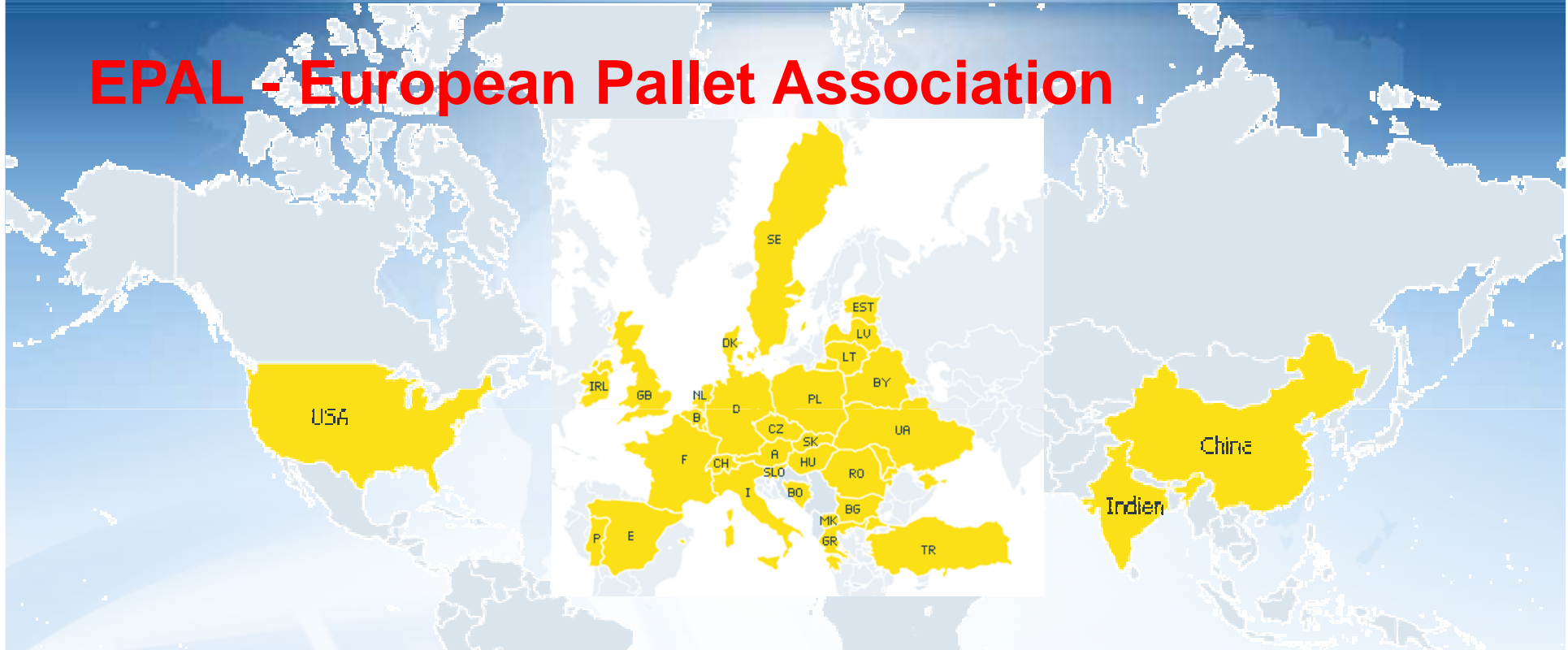


EPAL Pallet system



The ideal worldwide logistics solution

EPAL - European Pallet Association



- Open pool with more than 400 mio wooden pallets
- Producing more than 70 mio new pallets per year
- 400 Production partners in more than 30 countries (licence)
- 1000 Repair centers (licence)
- 30 Traders



EPAL Pallet system



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Why RFID?





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Vision

Each EPAL pallet can be **uniquely** identified

Pallet users will gain new possibilities within the
Supply Chain Management

Pool user will gain a valuable tool
to control flow and ownership of the pallets

Improves the control of production and repair process
and will allow a clear authentication





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Introduction

- The European Pallet Association (EPAL) started beginning of 2007 the project „EPAL RFID System“. Goal of the project is the full integration of the RFID technology into EPAL pallets.
- During the first project phase in 2008, a pilot has been realised showing the technical and practical realisation of such an integration.
- In the second phase the final processes, hardware and software components will be defined. Goal of this phase is to develop an integration plan for the roll-out.





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Potential benefits

For EPAL pallet user

- Automated identification
- Possible quality check of each pallet
- Asset management
- Use of RFID in the complete supply chain



For the EPAL organisation

- Reduction of the administration through the automated invoicing process of the licencing fee
- Worldwide transparency of the EPAL licencee
- Secured high quality system for EPAL pallets
- Expected reduction of counterfited pallets
- Expected identification of black markets
- Fulfillment of customer expectations





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Project organisation

EPAL Board

EPAL Working Group RFID

Project team EPAL RFID System

EPAL Coreteam

- NK Switzerland
- NK Germany
- NK Netherlands
- UIC representatives

GS1

- GS1 in Europe
- GS1 Switzerland
- GS1 Germany

Pre Rollout Partner

- EPAL producer
- Retailers

Technology Partner

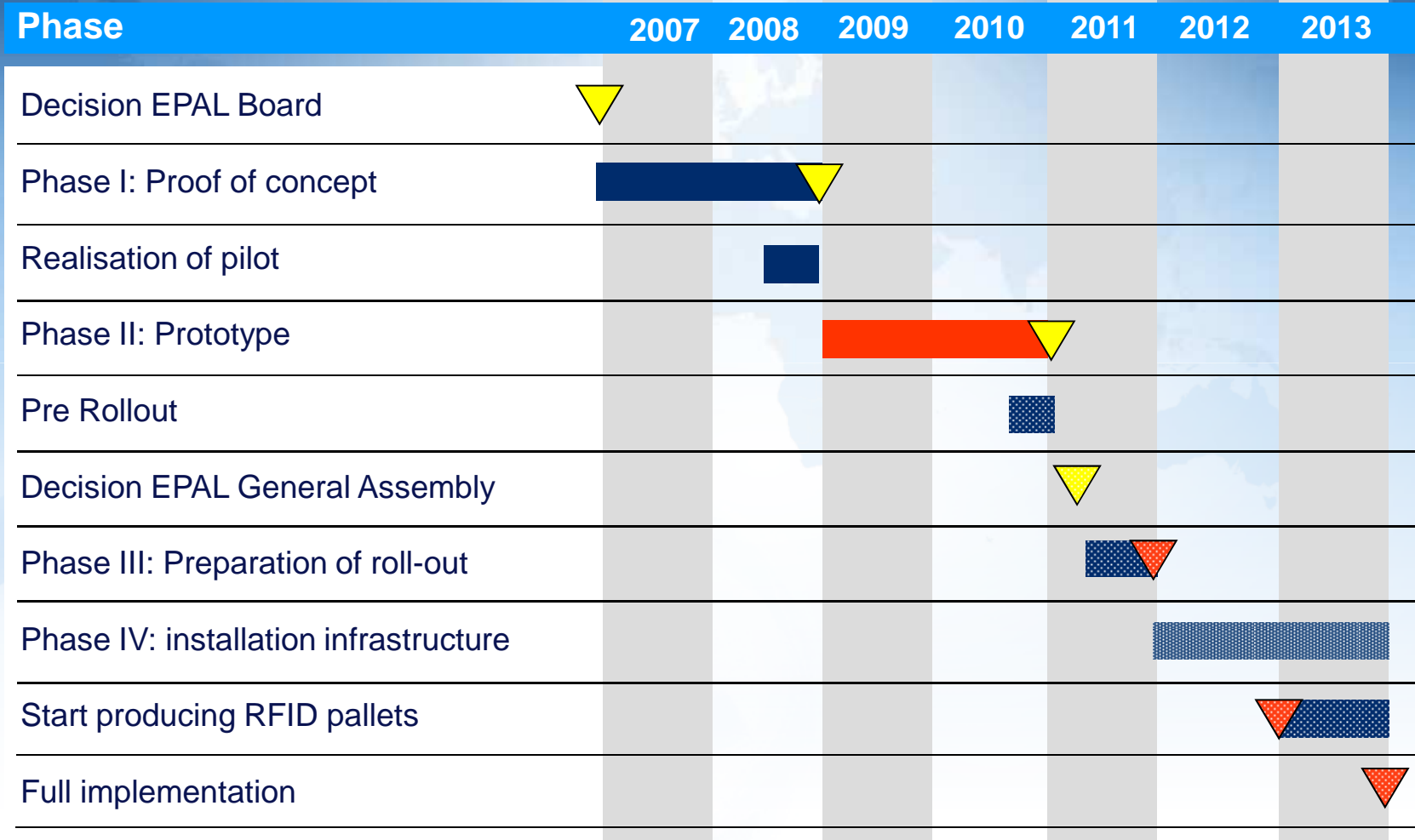
- Swisscom Auto ID
- Label producer



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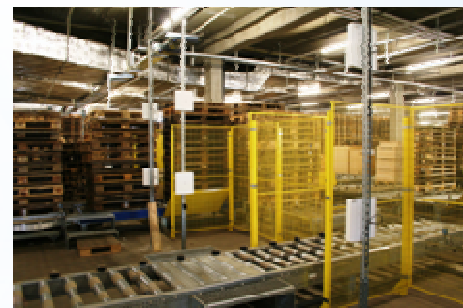


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Pilot project in 2008





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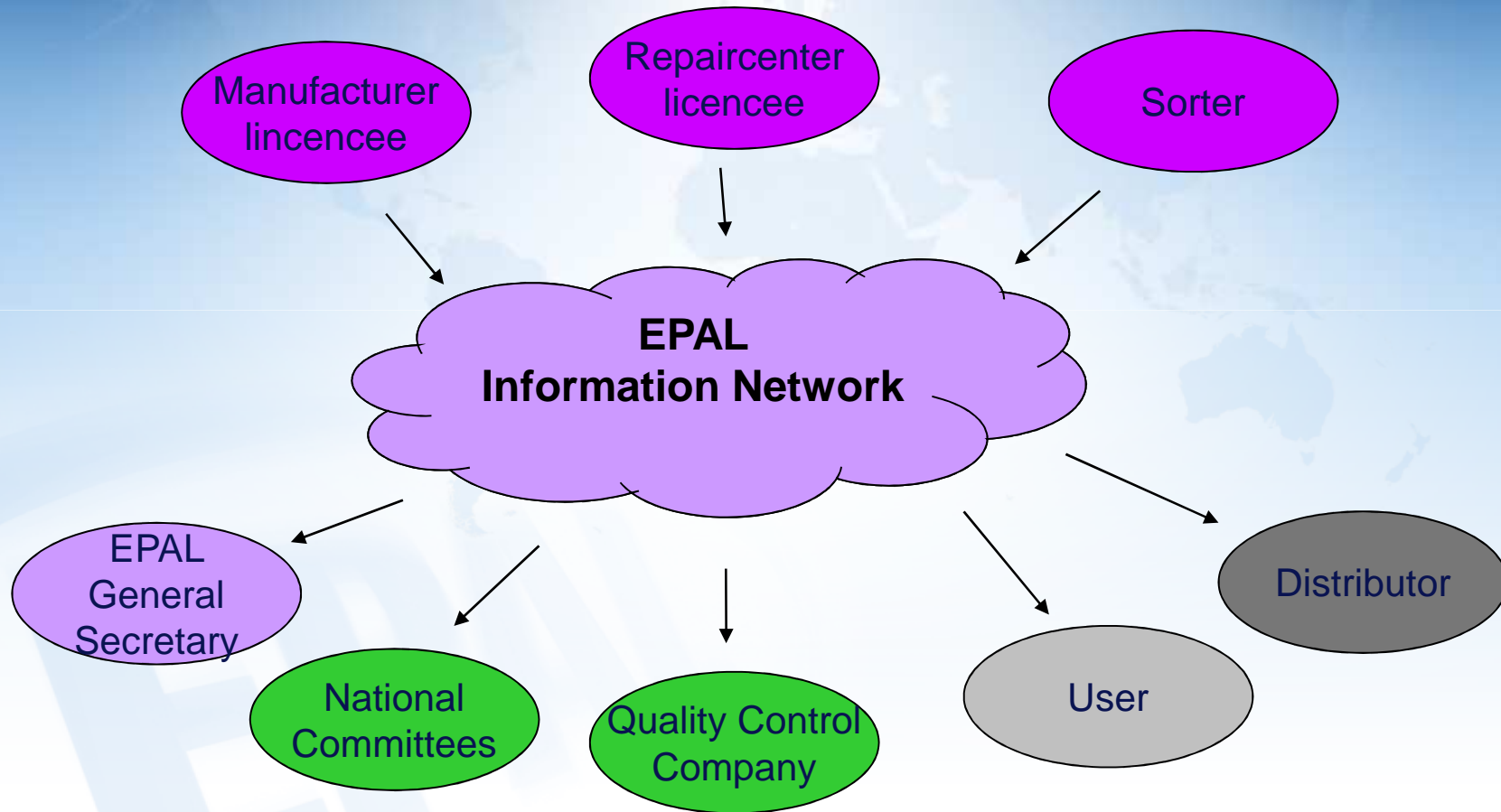
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EPAL





Participants in the EPAL RFID system





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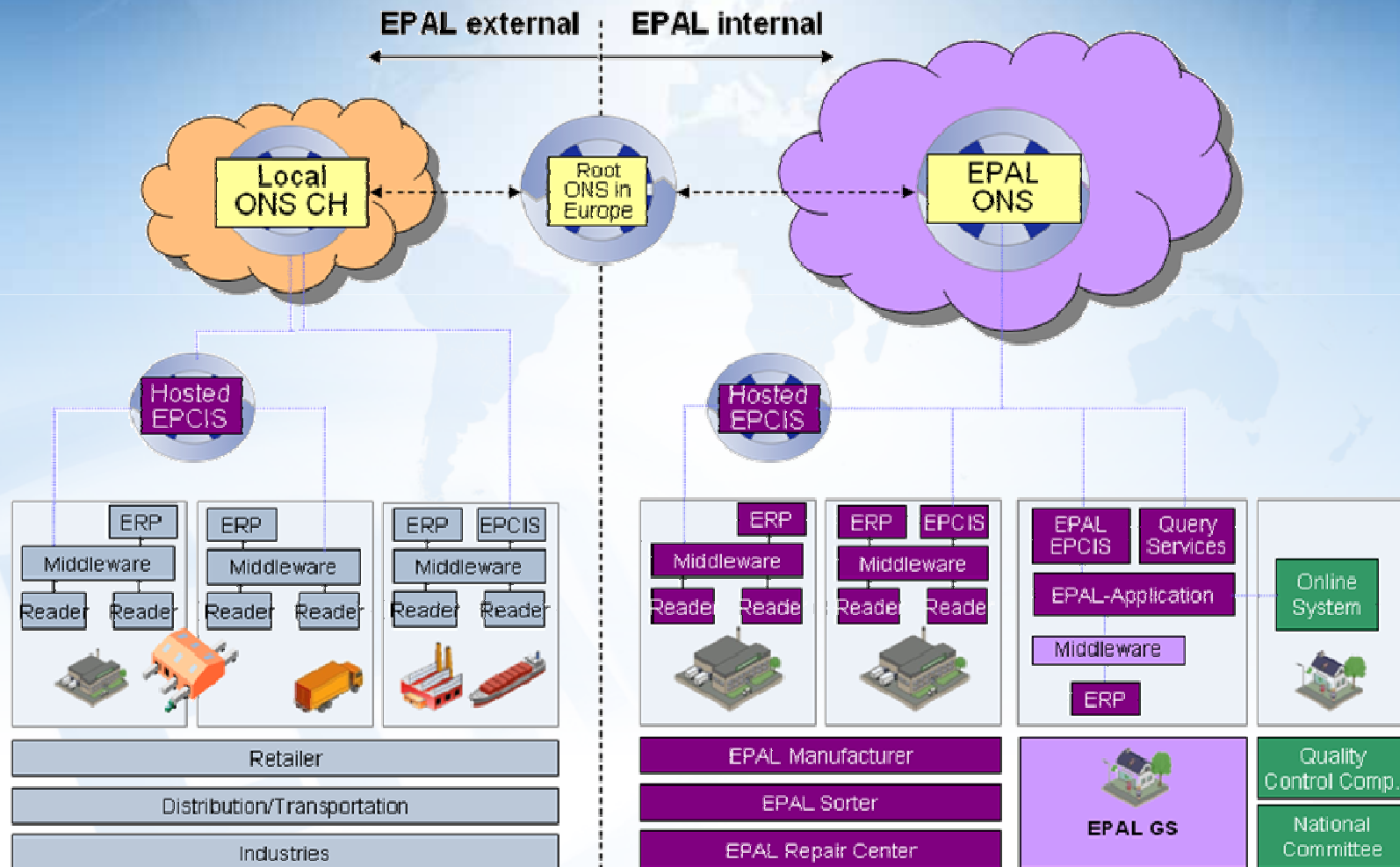


The EPAL RFID System

- Each pallet receives a unique serial number (GRAI)
- All relevant information are stored in the EPAL network
- Events (what, where, when and why) created by the licencees are stored locally
- The tag contains only a unique number – no other information is stored into the memory of the tag → the intelligence lays in the network
- Each user can query the central EPAL database on the actual status information of his pallets



Overall architecture



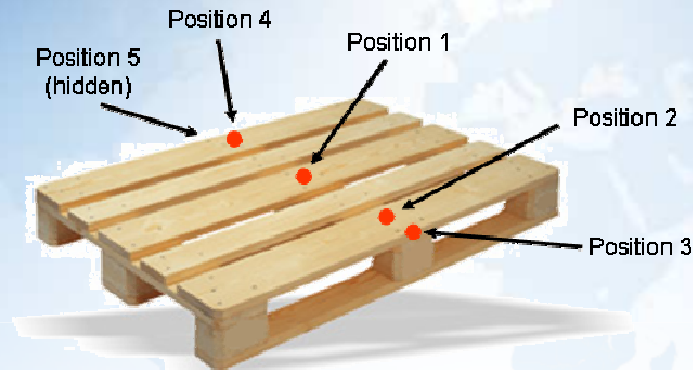


Some major questions needed to be answered

- Which technologie?
 - aktiv / passiv / UHF / HF Passiv / UHF Gen 2
- Which standards?
 - GS1 EPCglobal / DIN / ISO GS1 EPCglobal
- Which data content?
 - Data on Tag or Data on Network
 - Barcode as backup? GRAI 96 + User Memory
Data on network
Barcode GS1 128
- Amount of tags?
 - 1,2,3 oder 4 Tags min. 2 tags
- Which placement?
 - Where should the tags be placed? One on the short side and one on the long side
- Tag mounting?
 - Nailing, glueing, welding? Open



Pallet tagging



Static tests



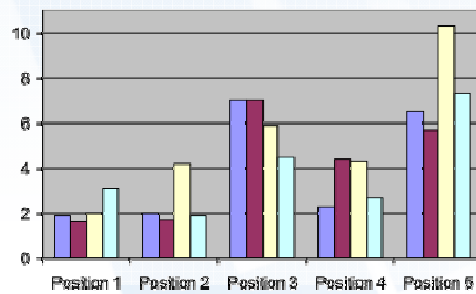
Dynamic tests
and simulation of the
retail environment



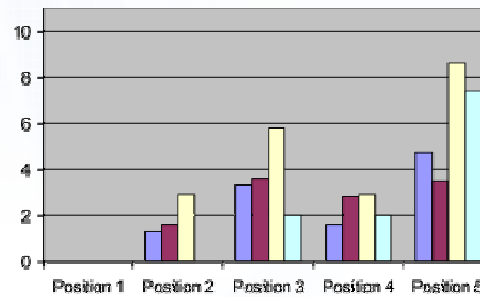
Dynamic tests



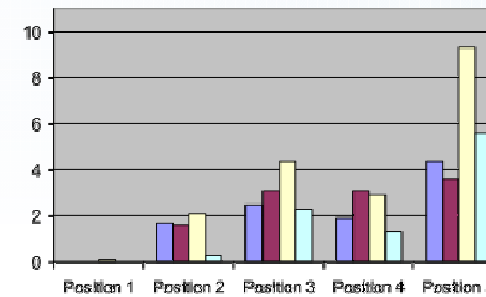
Empty pallet



Pallet loaded with coffee products (aluminium)



Pallet loaded with WC cleaner (liquid)





Tag mounting

Challenges

- Wood as „living“ material
- High environmental stress
- Automated mounting process required

Evaluation

- Nailing: first experiences exist
- Glueing: a soft-tag with „organic“ glue
- Welding: in deep evaluation

→ Practicality not proven by now



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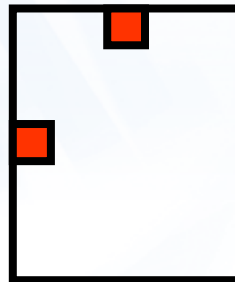
Standardisation

- In 2009 a GS1 EPCglobal working group created a guideline called „Pallet Tagging“:
 - Over 50 companies such as manufacturers, retailers and service providers around the world have been working together on this guideline
 - Co-authors from EPAL, CHEP, LRP, Korea Pallet Pool, SmartFlow Pooling
 - The guideline will be finally approved soon
- The EPAL RFID System is based on the following global GS1 standards and as result out of the guideline „Pallet Tagging“:
 - EPC Electronic Product Code
 - EPCIS (EPC Information System)
 - GRAI 96 Global Returnable Asset Identifier
 - GS1 128 Barcode



Key elements of the guideline

1. The GRAI key to be the GS1 identification key to identify pallets
2. The GRAI data structure (GRAI 96 only) to be used
3. A minimum of 2 GRAI tags are sufficient – the exact placement of the tags still needs further definition and clarification at a later stage. Storage of the SSCC code in the user memory is optional
4. Wooden pallets should have one RFID tag on the longer side and one tag on the shorter side of the pallet
5. Advisable and therefore optional that the GRAI number is also made available in a barcode and/or a human readable form on the pallet.





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Realisation of the guideline at EPAL



UHF, EPC Gen 2



120 x 17 x 2 mm





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Conclusion

1. The adoption of RFID in the market is slower than expected. The focus lays in the management of returnable assets – but the market demand remains low. The time of implementation is critical as the market needs to be ready to adopt.
2. The cooperation with GS1 assures that the EPAL RFID System remains compatible with other supply chain related RFID solutions. The standardisation work is not completed by now.
3. The EPAL internal process have been defined and the realisation has been proven. Some questions related to the tag on the pallet remain and need to be clarified.
4. The infrastructure at the licencees can only be defined after the final decision concerning the tags on the pallets.
5. The tag mounting process and technology remains undefined – good concepts exist but still require further investigation

