

The background of the slide is a collage of images related to RFID technology. On the left, there is a blue-tinted image of a circuit board with a small black RFID chip. On the right, there is an orange-tinted image of a printed circuit board (PCB) with several integrated circuits. The central area is white, providing a clean space for the text.

RFID CONGRESS

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**A DECADE OF STANDARDIZATION WORK
WITHIN ISO/JTC1/SC31
ON ITEM MANAGEMENT**

A decade of standardization work

- **2000-2006**: Concentrating on hard ware stuff at the begining, essentially on air interface protocols and associated standards
- **2007**: Enlarging to batteries, sensors and software
- **2009**: Adressing security issues, enlarged memories, and multi user scenario

Air Interface & associated Stds

- **Base standards** (ISO 18000-X) published in 2004, cover 5 frequencies (LF, HF, UHF passive, UHF active, SHF)
- **Conformance standards** (ISO TR18047-X) published in 2006
- **Performance standard** (ISO TR 18046) published in 2006
- **Data protocols** (ISO 15961 & 15962) published in 2005

Air Interface Protocols

- **Base standards** (ISO 18000-X) regularly amended or revised. (i.e. addition of protocols 18000-6C = ISO version of EPC C1G2; 18000-6D, and batteries and sensors)
- **Conformance standards** (ISO 18047-X) regularly amended or revised to cope with the corresponding base standard. Still under development
- **Performance standard** changed into a multiple part standard (ISO 18046-X) to cover the RFID devices (Interrogators and Tags) and RFID systems. Still under development.

Associated Standards

- **Data Protocols** (ISO 15961-X & 15962) published in 2005 and regularly amended or revised to incorporate new requirements.
- **Software System Infrastructure** (ISO 24791-X) under development
- **Implementation Guidelines** (ISO 24729-X) covering labels, packaging, recycling of tags and Tag data security. Published in 2008 and 2009.

New developments

- **Sensors and batteries** (ISO 24753) Application protocol for data encoding rules.
- **Security and File management** (ISO 29167) Work started in 2009 after the creation of a new Working Group to address security issues and multi-users environment
- **Mobile RFID** (ISO 29143 & 29172 to 29179) to cover the usage of mobile phone as a RFID reader in the UHF range (NFC uses the HF range). ISO 29143 partly published in 2010, others under development

A decade of standardization work

➤ The standardization process is in line with the market situation:

-) In applications:

- **2000-2008**: Only closed loop applications (even in the retail)
- **2009-2010**: Open loop applications are considered (i.e. in the aeronautic industry)

-) In technology:

- Utilisation of sensors associated with tags
- Need for high memories (i.e. in maintenance)

The next decade ?

- The last decade was the decade for RFID. The next one will be the decade of the Internet of things (IoT). It will open up a number of applications with new functionalities and therefore extra work on standardization that will depend on market initiatives.
- For RFID itself, the next decade will focus on societal issues linked with the deployment of the RFID technology. Essentially Privacy and Human Exposure.

Privacy and Data security ?

- The European Commission has taken two very important initiatives:
 - A recommendation was posted on 12th May 2009
 - A mandate (M436-EN) was addressed to the three ESOs
- ISO has also taken some initiatives
 - SC27 has been working on both Security & Privacy issues. For Privacy, 3 Standards under development (ISO 20100, 29101, and 29190)
 - ISO TMB has created a Task Force in 2008 to review existing Public policies and has created a Privacy Steering Committee (PSC) who organizes a Privacy Standard Conference in Berlin next October (8-9)

Human exposure ?

- There are existing regulations and standards linked with Human exposure to non ionizing electromagnetic fields
- However due to the expected extension of applications there is a need for additional work. The key issues here are Awareness and Confidence of the Public in the technology.

A decade of standardization work

- The base standards are published and upgraded on a constant basis.
- A new generation of standards covering new functionalities will be published in 2010-2011.
- It's up to the market to use them.....

My satisfactions?

- Professionalism and enthusiasm of all my colleagues during these last 8 years of personal involvement
- The standardization philosophy of ISO/IEC/JTC1/SC31 based on consensus

My regrets?

- The lack of momentum on the development of the Conformance & Performance standards.
- The lack of involvement on interoperability/interchangeability issues
- The lack of involvement of users representatives in the various working groups and sub-groups. The « empty chair » attitude is wrong. **But there are some exceptions.....**

My thanks to:

➤ All the colleagues I have been working with, all over these years and especially to:

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-) Josef Preishuber-Pfluegl (Cisc): WG4/SG6 Chairman
-) Craig Harmon (QED Systems): WG6 Chairman
-) Dan Kimball (SRA):WG7 Chairman



That's all Folks



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