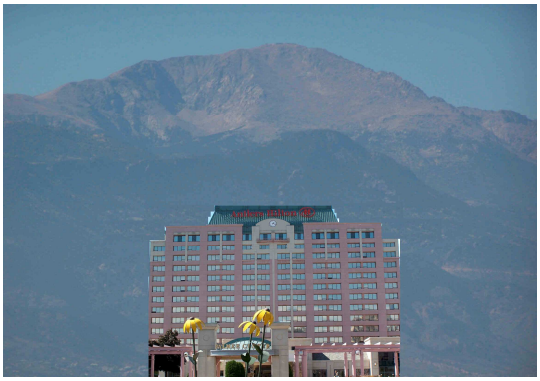
E D C Quick INFO
standardisation progress
Barcode & RFID

ISO/IEC JTC 1/SC 31 WG 2, 4 Meetings BC&RFID

Colorado Springs September 19-23, 2005

High Lights

- ISO/IEC achieves interoperability for RFID as practised with bar code by integrating the data structures of industries, health care, trade and distribution (with ASC, EPC, etc.)
- Application Family Identifiers will be opened for new RFID structures. Criteria for registration will be added as for the issuing agencies.
- ISO/IEC 15459 Unique Identifiers for Item Management will be used by integrating RFID Object Identifiers. With the same instance, requirements for clear definitions, as demanded by normalisation institutes such as DIN, were accepted.
- ISO/IEC 15434 Transfer Syntax will be extended with Text Element Identifiers, TEI, for Aircraft and Space industries as supported by the US Department of Defence.
- RFID AIR Interface for UHF 860-960MHz, ISO/IEC 18000-6c is in the finalisation phase, the data protocols being under update.
- New work item of WG4/SC5 is the development of RFID user guidelines namely for labelling and packaging, antenna installations and tag recycling.

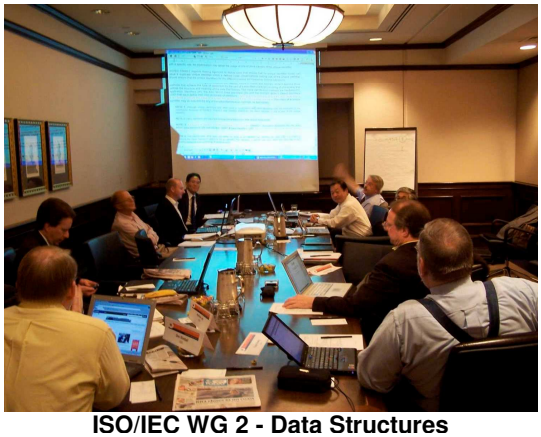


ISO/IEC JTC 1/SC 31 Colorado Springs

ISO/IEC WG RFID Application Guidelines

Following the invitation of the American Normalisation Institute (ANSI), the working groups for RFID and Data Structures met in September in Colorado City.
Representatives of more than 10 ISO member countries and guests took actively part in the working sessions.

The task of the working groups is to write international standards for Automatic Data Capture technologies, which full fill the requirements of every continent and market sector and constitute the basis for cross sectorial data communication. It addresses specifically the IT area which specifies the unique identity for traceability purposes for items, products, transport units, no matter where they appear in the global world.



ISO/IEC WG 2 - Data Structures

For product labelling via Barcode this had already been achieved with one single ISO specification and one single ISO standard. The present tasks of the working group concern the extension of these ISO standards to Radio Frequency Identification, RFID. (ISO 15965 to 7).

<u>Interoperability through Application Family Identifier's (AFI's)</u>

The interoperability, i.e. the contemporary usability of both Barcode and RFID, is enlarged as to create a registration layer for specific data structures which are being used in transponders, called „Application Family Identifiers", AFI's, which identify the data structure in use. The committee decided for a registration procedure of such data structures due to the importance of the issue. Users of vicinity card technology utilize the same procedure. „AFI's" enable to carry and capture information from RFID tags having different data structures. This is a necessary advantage in all cases where different kinds RFID tags are used in a supply chain. as it happens with transport services and distribution but also at the receiver's side when it is necessary to read RFID tagged information. With this solution ISO will achieve the highest possible interoperability and rationalisation which cannot be achieved by single structure systems such as EPC of GS1, the former EAN association. Specifically in the case of UHF transponders, AFI and EPC will get a single bit recognition already at AIR Interface level, ISO/IEC 18000 part 6c, because EPC needs an additional level for its sub categories. The data structures used with Barcode, based on ASC Data Identifiers and EAN Application Identifiers, have already been properly defined in conjunction with AFI's for Transport Unit „License Plates", compatible with the Barcode label standards. The GS1 group indicated in the meeting it's intention to withdraw a number of AFI's previously reserved for EAN/UCC in order to minimise the list of AFI's in favour of the EPC-ID.

Global uniqueness by extension of ISO/IEC 15459
ISO/IEC 15459 will be extended from its functionality for transport units to a solution for „every item". This upgrade sets the prerequisite for unique identification in global environments. The ISO standard for product package labels ISO 22742 as well as the ISO Transport label ISO 15394, refer to the hierarchical structure of ISO 15459, setting the rules for unique company codes. Any item, no matter if product or returnable container, can already now have a unique ID and be scanned anywhere in the world by making use of that norm. The given structure „Code of the Issuing Agency+Company Code+Data" is already being used for smallest direct marking in many user areas (see DIN V66401 and HIBC UIM). The extended functionality of the norm considers the RFID technology for compatibility reasons with Barcode. At this point there was the danger of non-sufficiently accurate definitions. DIN NI 31 and others insisted in keeping the accuracy of the previous specifications. This was finally accepted. The compatibility of Barcode to RFID and vice versa is to be achieved by a solution where the ID's used with Barcode will be translated in „Object Identifiers" (OID's) used in the RFID technology language. Relevant OID's will be listed and defined clearly. In this way the support of every traditional application is insured guarantying continuity and innovation at same time. The document ISO 15459 will get a dominant value for global supply chain management whenever Barcode and/or RFID is used.

ISO/IEC 15434, Transfersyntax for high capacity data
After 5 years of existence this syntax will get an extension. Specific data structures, using so called Text Element Identifiers (TEI's), will be added upon request of Aircraft and Space industries supported by the US Department of Defence (DOD). The syntax will enable to mark directly, for identification purposes, Aircraft and Helicopter parts in a unique and interoperable way through ISO/IEC 15418 Data Identifiers. On a logistical level, Data Identifier (DI's) will be used for Barcode and RFID particularly when parts are supplied from other industries (Electronics, etc.). This upgrade is certa+inly a major improvement for interoperability.

UHF RFID AIR Interface ISO/IEC 18000-6c is in the finalisation phase, the criteria for recognising the structure of the „Electronic Product Code (EPC)" having been integrated. The next step is to put the technical specification for the range of frequencies 860 to 960 MHz, in the final commenting round. Nevertheless this very broad UHF standard will in fact need special care to get successful applications. At least three critical issues need to be handled: A) the patent situation for different system components, B) different power and band widths in USA, Europe, Korea, Japan, leading to different reading performances and limitations, C) the usability of UHF with specific materials such as water and other UHF absorbing materials. Even long distance reading may be an obstacle to identify items at specific locations. Nevertheless, the UHF Air Interface ISO/IEC 18000 6c is expected urgently, otherwise nointeroperable standard system can be installed. The specifications for the other key frequencies, mainly 13,56MHz, are already available and usable in a harmonised way everywhere in the world. The relevant data protocols ISO/IEC 15961/2 will be upgraded in the course of the revision phase, particularly to accept the enlarged Application Family Identifiers. Part 2 "AFI Registration Procedure" and Part 3 "Technical definitions" will be added as well.

A new work item „Development of RFID Application Guidelines" has been assigned to WG4/SC5.
Three parts shall be written: Part A) „RFID Labelling & Packaging", B) Recycling, C) Guidelines for installation of antennas and interrogators. The pre-work of AIM Global will provide a sound basis for the guidelines. National experts groups are asked to contribute in order to achieve a guideline which is globally useful and supports successful installations of RFID around the world, using the powerful ISO standards which are accepted by all market sectors which contribute to the international standardisation process. This work will support as well the task of the Joined Working Group ISO TC 122 Packaging &TC104 Freight Containers, just now preparing the RFID application standards for Products, Packages, Transport Units and Returnable Items.

The mood in Colorado City was indeed pro-active. Nevertheless harsh discussions turned up partly to defend individual interests. But on the technical level consensus was achieved in all cases, thus supplying solutions for integrators and users. The ISO institutions showed dominant strength co-ordinating the interests of contributors as DOD, GS1, Aircraft Industries and others. With the achievements so far reached through an enormous amount of invested man power, the ISO standards can already be recommended to every user. ISO will supply sound and stabile solutions in a back compatible manner even considering the rapid development of RFID ADC technologies. Keeping close to the markets makes the ISO standards most attractive for all sectors particularly as the common base for business communication and supply chain management.

Noted by Heinrich Oehlmann / E D C, Colorado Springs, September 23, 2005
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