ISO – RFID STANDARDS

For Item Management

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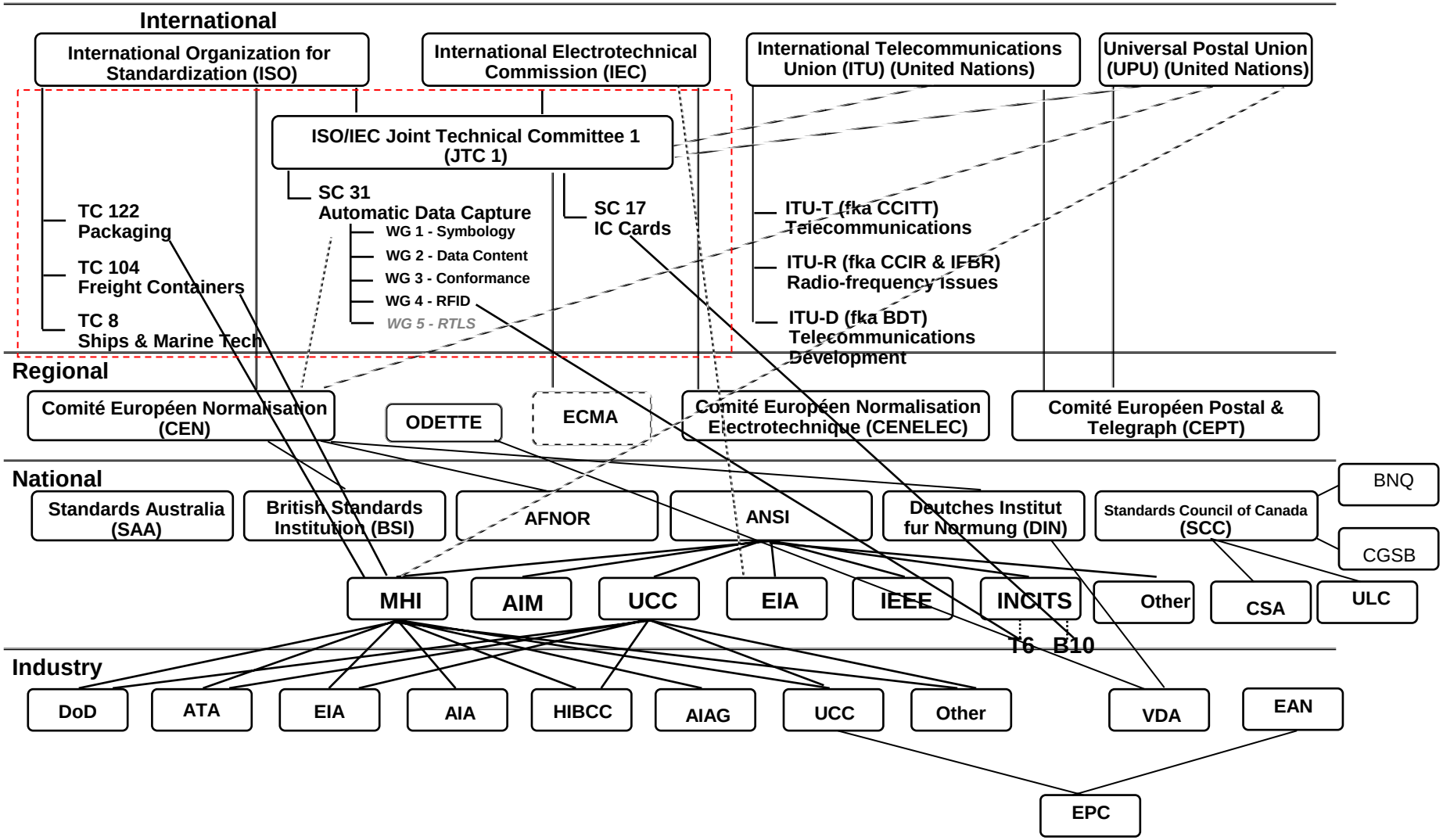
Some of the content and Charts have been provided by “QED Systems”

Standards Organizations



Benefits of Standardization

- Increases customers' confidence in new technologies
- Promotes world-wide RFID acceptance and technology advancement
- Broadens markets for manufacturers, encourages global competition, and reduces price for end users
- Facilitates applications development by encouraging interoperability and by reducing customization
- Provides development platform for complementary products (software, translators, hardware accessories)

Standards: Making the most of any new technology

International Organization for Standardization (ISO)

- **146 countries participate in the ISO process, the real operating membership consists of 85 countries**
- **The countries select a domestic organization to be their representative to ISO : Some Examples**

SCC - CANADA
ANSI - United States
AFNOR - France
BSI - Great Britain
JISC – Japan

- **Each country gets only ONE vote**

Role As a National Body - Regarding ISO

Responsible for coordination of Citizens [of each country] to the two most prominent voluntary international standards development fora

– the International Organization for Standaization (ISO) and

the International Electrotechnical Commission (IEC)

Country - Advisory Committee

- Each country's national body assigns an organization to be the Technical Advisory Group (TAG) for an ISO Subcommittee (SC) or Technical Committee (TC)
- TAG send participating volunteers as a delegation to the ISO SC meetings
- The Head of Delegation (HoD) votes for the TAG

TAG - Makeup

- Volunteers - Includes:
  - Standards Consultant specialists
  - Members of other domestic standards organizations
  - Members of Industry standards organizations
  - Technical experts from industry

STAGES TO DEVELOP AN INTERNATIONAL STANDARD

Project stages	New JTC 1 Procedures (1997)
Proposal stage	Acceptance of the New work item proposal **"NP"**
	Voting period: 3 months
Prepatory stage	Preparation of the Working Draft **"WD"**
Committee Draft stage	Production and acceptance of the Committee Draft **"CD"**
	Voting period: 3 to 6 months
Enquiry stage	Acceptance of the Final Committee Draft "**FCD"**
	Voting period: 4 to 6 months
Approval stage	Approval of the Final Draft International Standard **"FDIS"**
	Voting (Yes/No): 2 months
Publication stage	Publication of the International Standard **"IS"** ISO/IEC

JTC 1 Committees

JTC 1 / SC 2 Coded character sets
JTC 1 / SC 6 Telecommunications and information exchange between systems
JTC 1 / SC 7 Software engineering
JTC 1 / SC 11 Flexible magnetic media for digital data interchange
JTC 1 / SC 17 Identification cards and related devices
JTC 1 / SC 22 Programming languages, their environments and system software interfaces
JTC 1 / SC 23 Optical disk cartridges for information interchange
JTC 1 / SC 24 Computer graphics and image processing
JTC 1 / SC 25 Interconnection of information technology equipment
JTC 1 / SC 27 IT Security techniques
JTC 1 / SC 28 Office equipment
JTC 1 / SC 29 Coding of audio, picture, multimedia and hypermedia information
JTC 1 / SC 31 Automatic identification and data capture techniques
JTC 1 / SC 32 Data management and interchange
JTC 1 / SC 34 Document description and processing languages
JTC 1 / SC 35 User interfaces
JTC 1 / SC 36 Learning technology

ISO/IEC JTC 1/SC 31

- Joint Technical Committee 1 (JTC 1)
  - Sponsored by both ISO and IEC
  - Charted to work on technical specification related to “INFORMATION TECHNOLOGY”
  - 17 Current Sub-committees of which
  - SC31 is charted to work on automatic data capture technical specifications with respect to the :

“ Identification of Things”

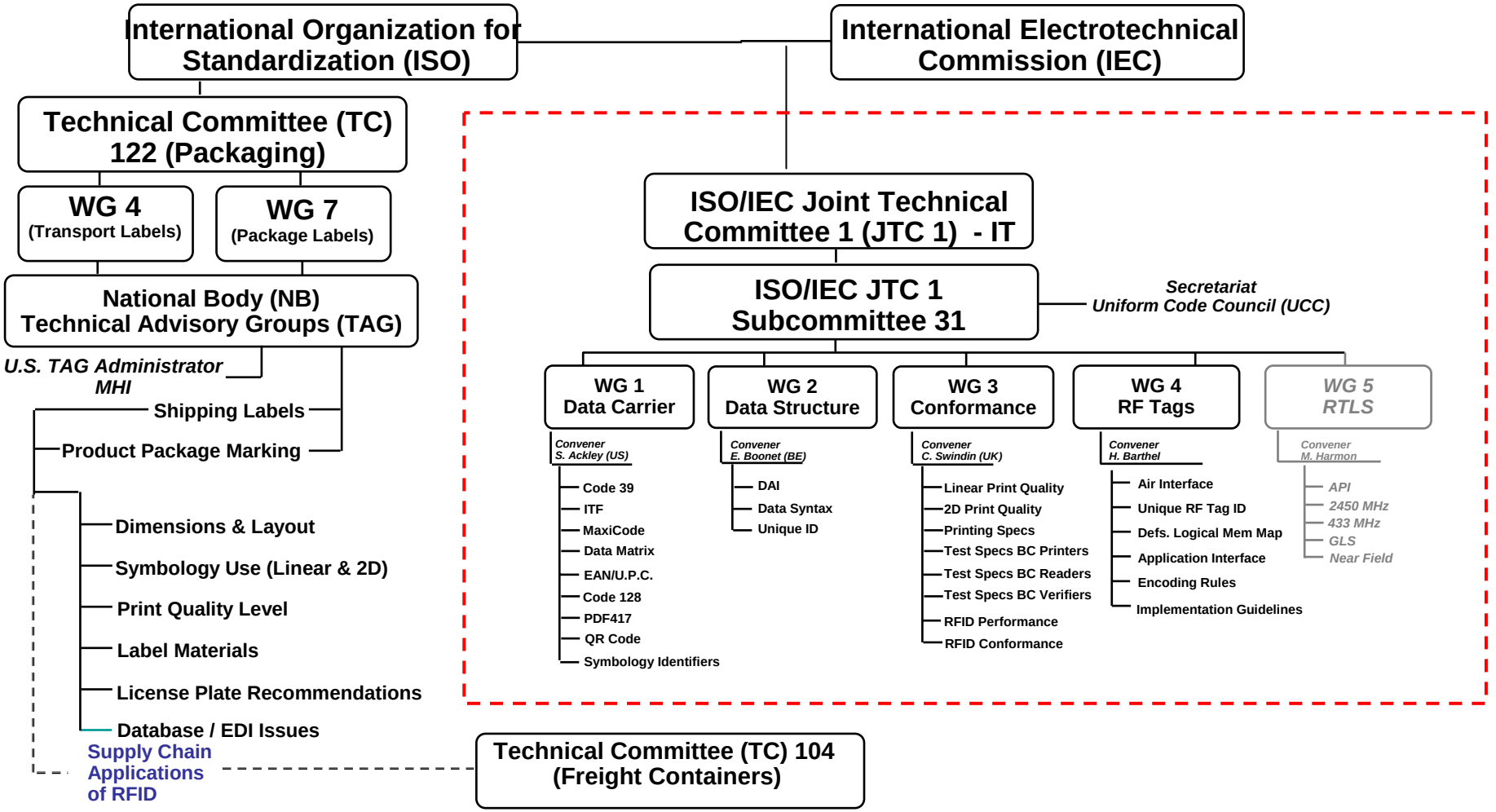
SC 31: Current Standards Activities:

- **ISO SC 31 is chartered to:**
  - **Write the ISO 1D and 2D symbology standards**
  - **Develop the international standards for both linear and 2D print quality**
  - **Write the ISO data structure standards**
  - **Develop conformance standards for scanners, printers, verifiers, and print quality**
  - **Develop RFID item identification technical standards**

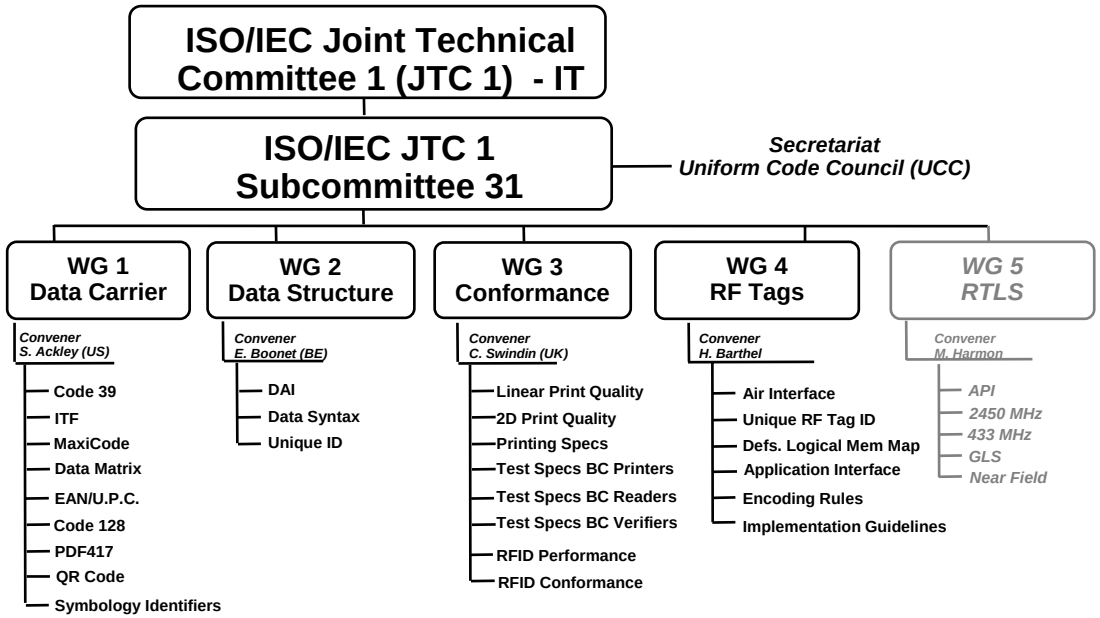
Excluded from SC31 Responsibility

- ISO TC 104/SC 4/WG 2 in the area of work on Automatic Electronic Identification for containers and container related applications.
- ISO TC 23/SC 19/WG 3 in the area of work on identification of animals.
- ISO TC 204 in the area of work on RFID for Transportation and Control Systems.
- ISO/IEC JTC 1/SC 17 in the area of work on Cards and Personal Identification.
- ISO TC 68/SC 6 in the area of work on Financial Transaction Cards, Related Media, and Operations.
- ISO TC 122/Ad Hoc Group in the area of work on Packaging Bar code Labels.

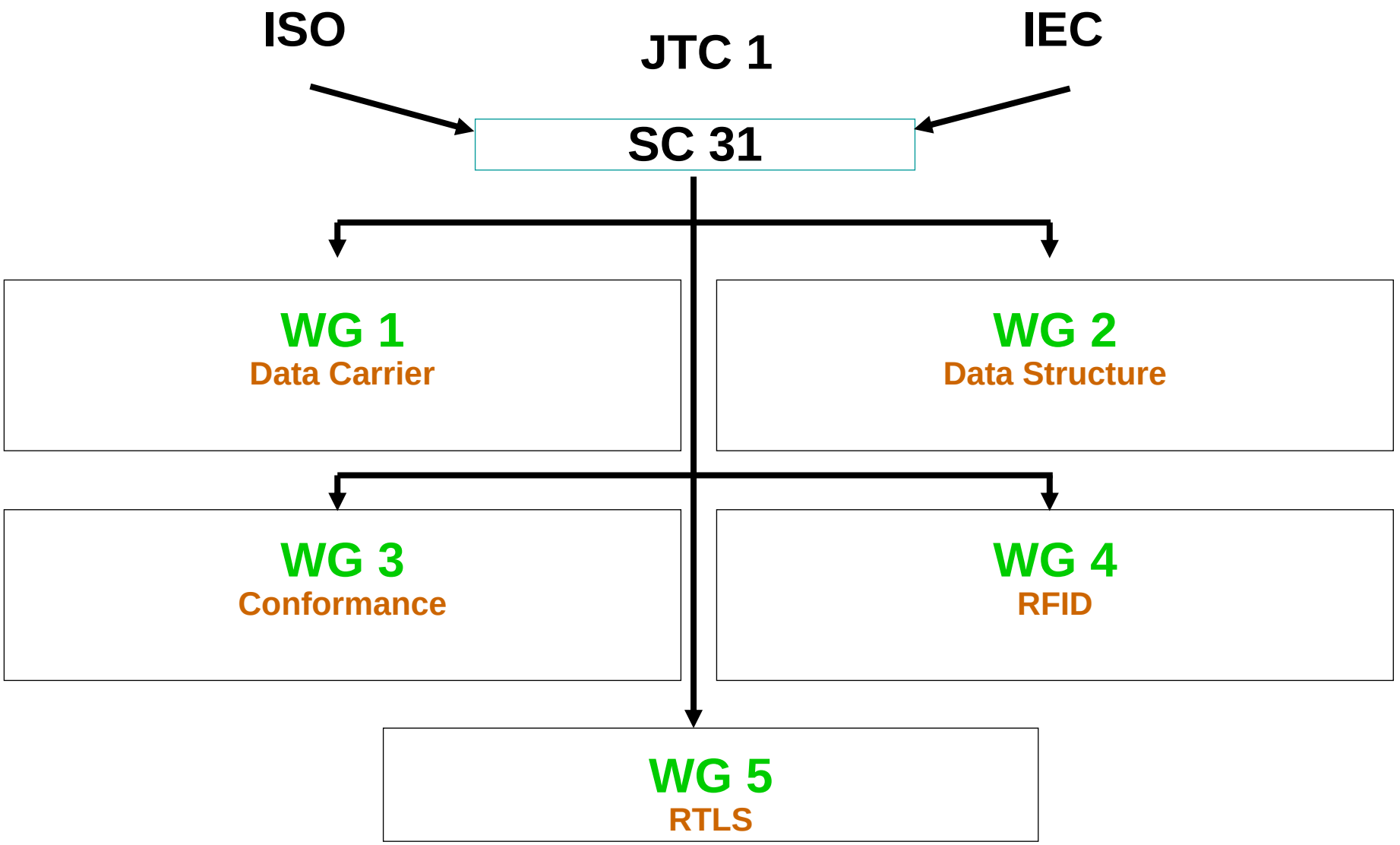
AIDC – Focused Standards



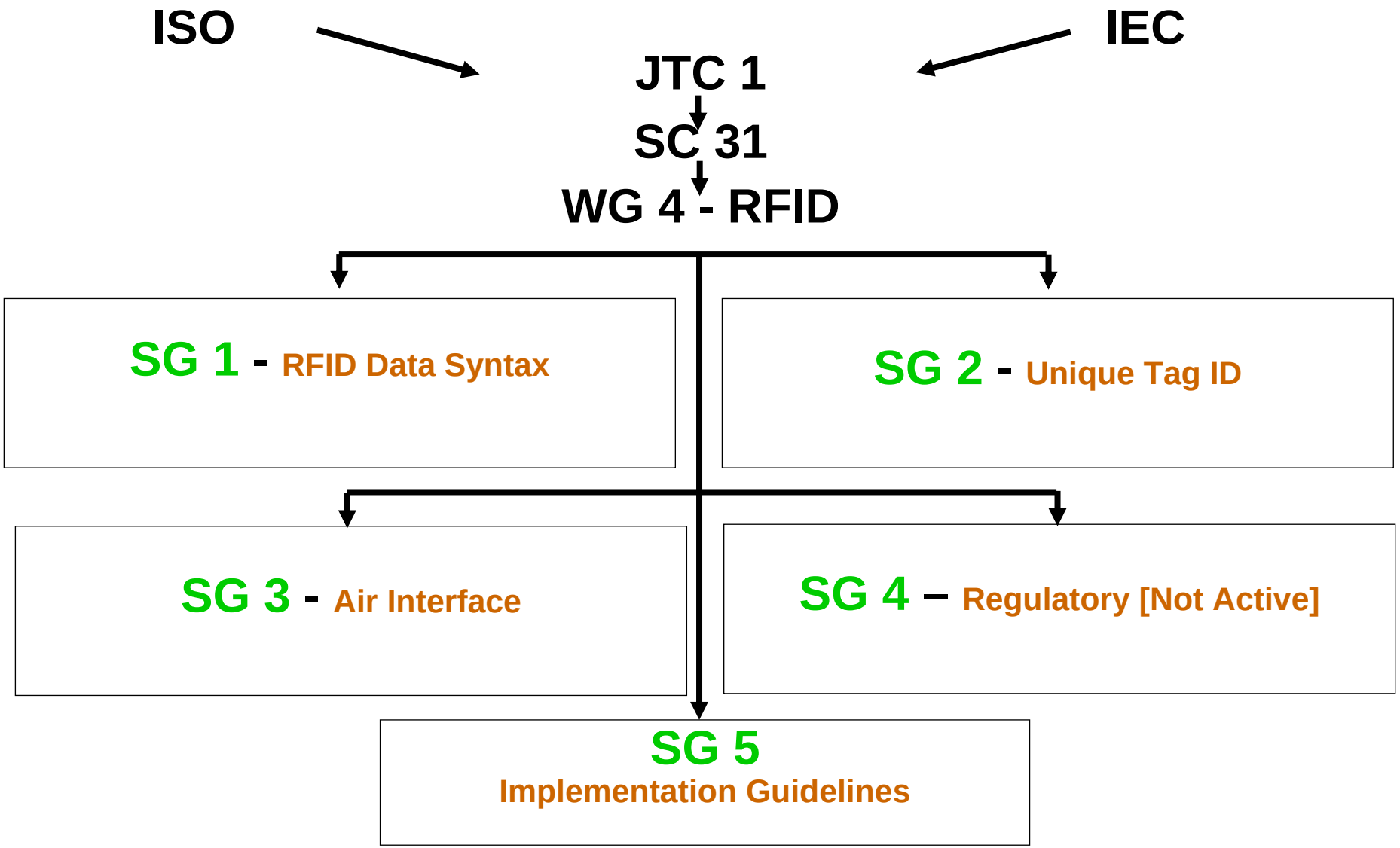
SC31 – Working Groups Focus



Working Group Focus



WG4 - Sub Groups Focus



Types of Standards

- *Technology (Symbology, RFID, I.C. Card)*
- *Data Content (DIs, AIs, Syntax)*
- *Conformance (Print Quality, Test Specifications)*
- *Application Standards (Ship Label, Product Package)*

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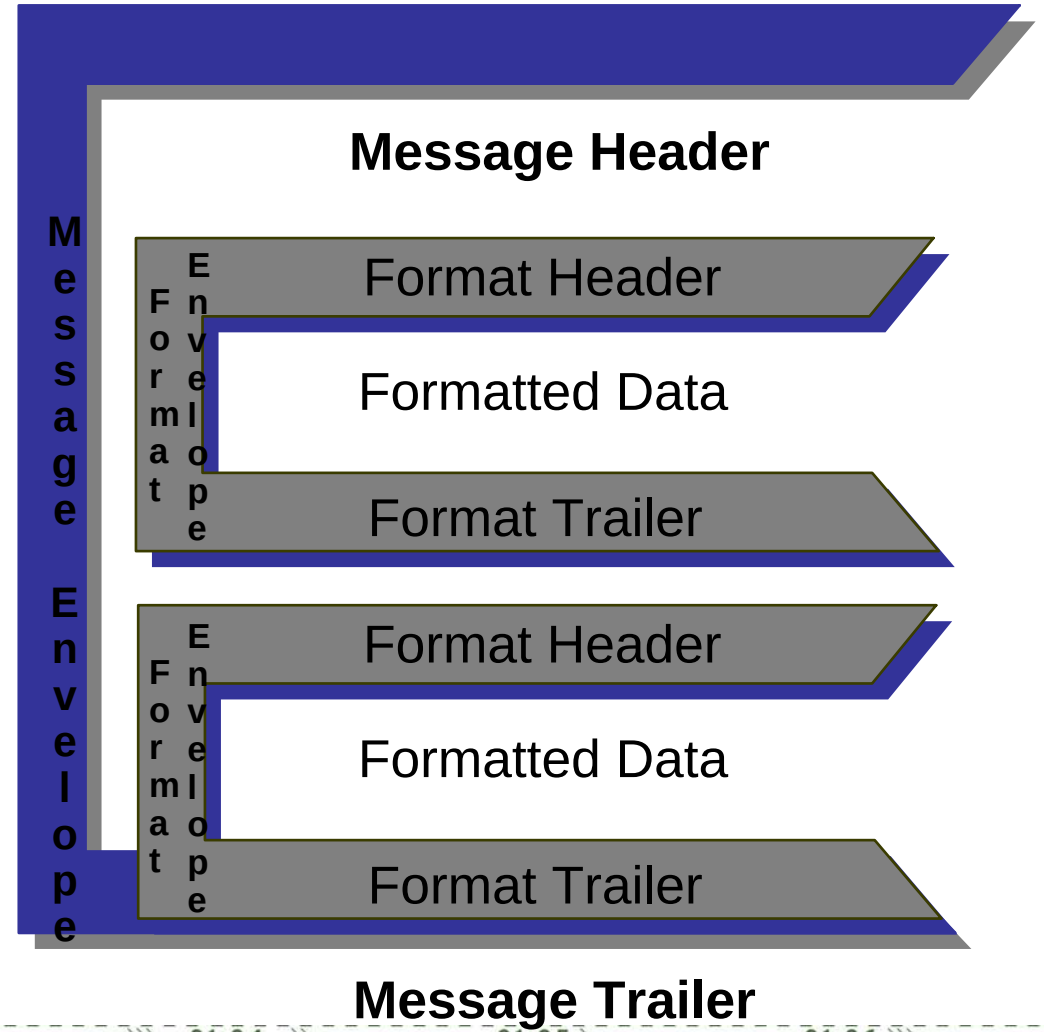
ISO 19762 - Information Technology AIDC Techniques - Harmonized Vocabulary

Data Content Standards
ISO/IEC JTC 1/SC 31/WG 2 & WG 4/SG 1

- **ISO 15424 - Data Carrier/Symbology Identifiers**
- **ISO 15418 - EAN.UCC Application Identifiers and FACT Data Identifiers and Maintenance**
- **ISO 15434 - Syntax for High Capacity ADC Media**
- **ISO 15459 - Unique ID for Transport Units; Part 1: Technical Standard; Part 2: Procedural Standard**
- **ISO 15961 - Host Interrogator-Tag Functional Commands & Other Syntax Features**
- **ISO 15962 - Transfer Syntax**
- **ISO 15963 - Unique ID of RF Tag**

Data Structure

ISO 15434 Enveloping Structure



Technical Standards
Radio Frequency Identification (RFID)
ISO/IEC JTC 1/SC 31/WG 4

- **ISO/IEC JTC 1/SC 31/WG 4/SG 3**

- **RFID for Item Management Air Interface (ISO 18000)**
  - **ISO 18000-1 - Generic Parameters - Air Interface**
  - **ISO 18000-2 - Parameters for Air Interface <135 kHz**
  - **ISO 18000-3 - Parameters for Air Interface at 13.56 MHz**
  - **ISO 18000-4 - Parameters for Air Interface at 2.45 GHz**

  - **ISO 18000-6 - Parameters for Air Interface at 860-930 MHz***
  - **ISO 18000-7 - Parameters for Air Interface at 433.92 MHz****

Conformance Standards
Radio Frequency Identification (RFID)
ISO/IEC JTC 1/SC 31/WG 3/SG 1

- **ISO 18046 - RFID Device Performance Test Methods**
- **ISO 18047 - RFID Device Conformance Test Methods**

RFID Standards - Summary

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Technology Standards

- **ISO/IEC 18000 - RFID for Item Management**
  - ✓ Part 2 - 125 - 150 KHz
  - ✓ Part 3 - 13.56 MHz
  - ✓ Part 4 - 2450 MHz
  - ✓ Part 6 - 860 - 960 MHz
  - ✓ Part 7 - 433.92 MHz (active)
- **ISO/IEC 24730 - RTLS**
  - ✓ Part 1 - API
  - ✓ Part 2 – 2.4 GHz
  - ✓ Part 3 - 433 MHz
  - ✓ Part 4 - GLS

Data Standards

- **ISO/IEC 15418 - Application Identifiers & Data Identifiers**
- **ISO/IEC 15434 - Syntax**
- **ISO/IEC 15459 - Transport License Plate**
- **ISO/IEC 24721 - Unique Identification**
- **ISO/IEC 15961 - Data Protocol: Application Interface**
- **ISO/IEC 15962 - Data Protocol: Data Encoding Rules and Logical Memory Functions**
- **ISO/IEC 15963 - Unique Identification for RF Tag**

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Data Standards

Software System Infrastructure

- ISO/IEC 24791-1 - Device Management
- ISO/IEC 24791-2 - Data Management
- ISO/IEC 24791-3 - Application Management
- ISO/IEC 24791-4 - Application Interface
- ISO/IEC 24791-5 - Device Interface
- ISO/IEC 24791-6 - Security

Battery Assist & Sensor Functionality

- ISO/IEC 24753 – Air interface

RFID Standards - Summary

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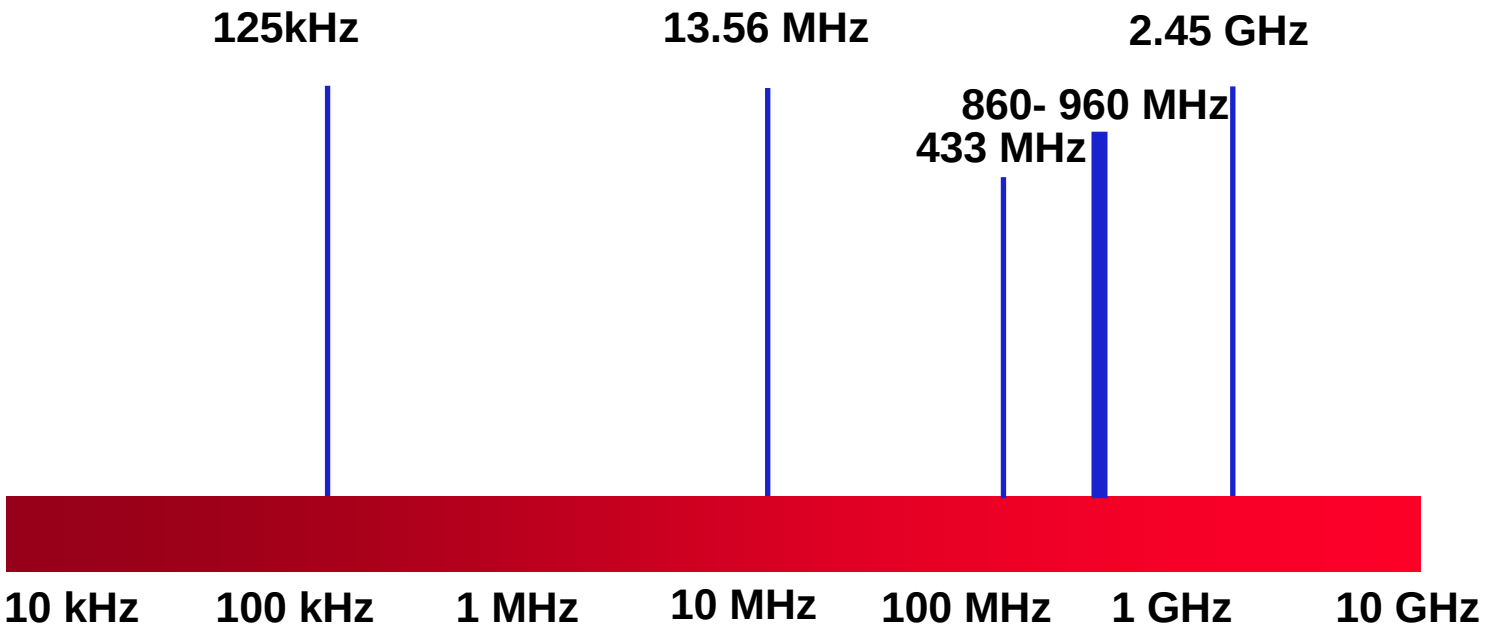
Conformance Standards

- **ISO/IEC 18046 - RFID Device Performance Test Methods**
  - ✓ Part 1 – Test methods for system performance
  - ✓ Part 2 – Test methods for interrogator performance
  - ✓ Part 3 - Test methods for Tag Performance
- **ISO/IEC 18047 - RFID device conformance test methods (at)**
  - ✓ Part 2 - 125 - 150 KHz
  - ✓ Part 3 - 13.56 MHz
  - ✓ Part 4 - 2450 MHz
  - ✓ Part 6 - 860 - 960 MHz
  - ✓ Part 7 - 433.92 MHz (active)

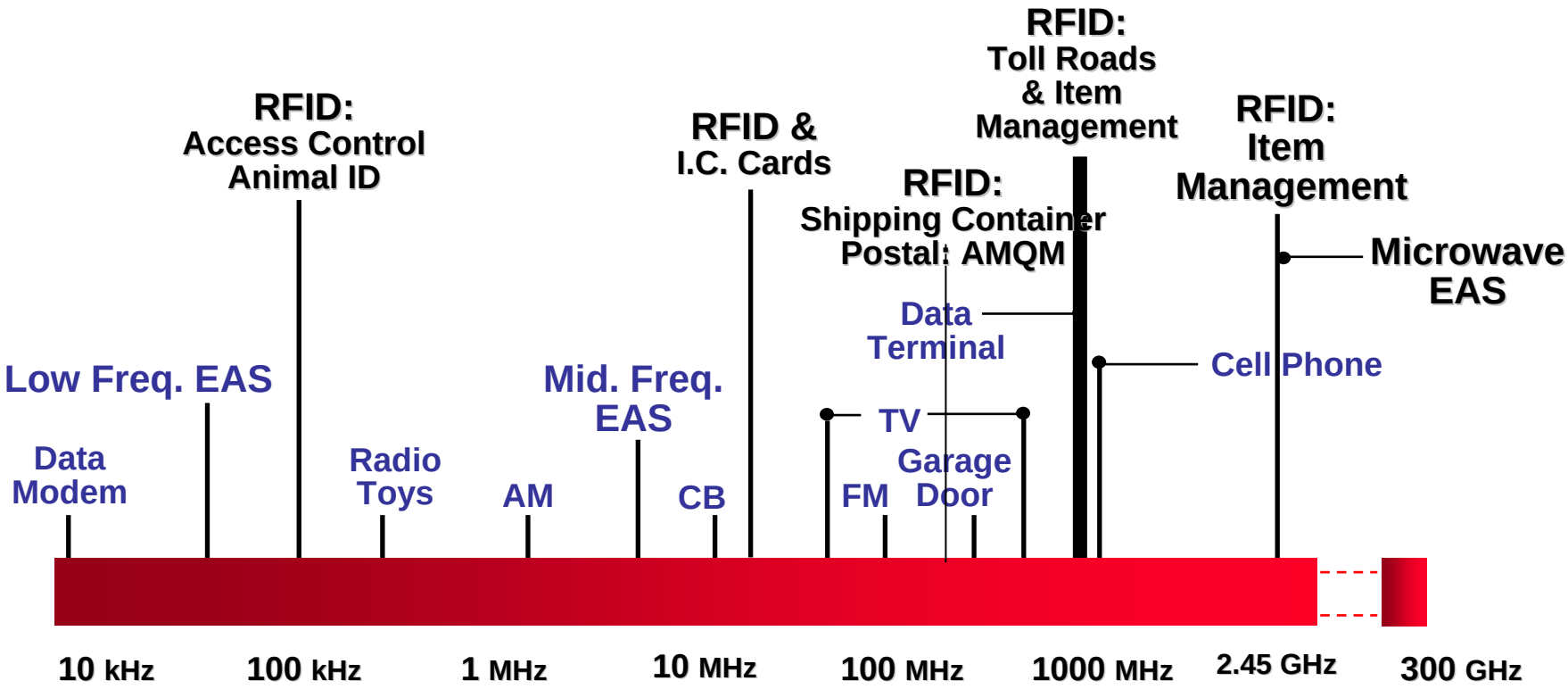
Implementation GuideLines Standards

- **ISO/IEC 24729 Implementation Guidelines**
  - ✓ Part 1 – RFID – Enabled Labels
  - ✓ Part 2 – Recyclability of RF Tags
  - ✓ Part 3 - RFID Interrogator / Antenna Installation

RFID for Item Management
Frequencies



RFID Primer…Frequencies



Thanks

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