ICAR relations to ISO

- Since many years ICAR has an official liaison to ISO TC23/ SC19 as an

  "organization that makes an effective contribution to the work of the technical committee or subcommittee."

- Until 2007 informal agreement with ISO on testing and approval of ISO 11784 / 11785 conforming devices

ICAR relations to ISO

- since 2007 ICAR formally is contracted as the ISO Registration Authority for the International Standards ISO 11784 and ISO 11785
- Current ICAR test procedures for RFID devices are in transition to become ISO standard 24631

International Organization for Standardization

- Network of the national standards institutes of 157 countries
- Non-governmental organization that forms a bridge between the public and private sectors.
- Consensus on solutions that meet both the requirements of business and the broader needs of society

International Organization for Standardization

- Many member institutes are part of the governmental structure of their countries, or are mandated by their government.
- Other members have their roots uniquely in the private sector, having been set up by national partnerships of industry associations.

International Organization for Standardization

- TC 023: Tractors and machinery for agriculture and forestry
  - TC 023/ SC 19: Agricultural electronics
    - WG 3: Identification
      - TWG Identification

International Organization for Standardization

- Countries represented in WG3:

  USA, Brazil, Germany, Austria, Netherlands, Ireland, Australia, France, Sweden, Denmark, Switzerland, Japan, Belgium, Italy, Spain, UK, Canada, Norway, Finland, Korea, Slovakia, New Zealand

- Organisations represented in WG3

  ISO, FECAVA, WSAVA, ICAR

ISO 11784 code structure

Bit no.	Information	Combinations
1	Flag for animal (1) or non-animal (0) application	2
2 – 4	Retag counter	8
5 – 9	User defined code	32
10 – 14	Reserved field	32
15	Reference to User Data Inside (advanced transponder)	2
16	Data block flag (monitor device)	2
17 – 26	ISO 3166 numeric-3 country code	1.024
27 – 64	National identification code	274.877.906.944

ICAR test protocols

Conformance of RFID-Devices

1 ISO 11784/84 conformance of transponders (incl. granting of the manufacturer code
NOW published as ISO 24631 – 1

2 ISO 11784/85 conformance of transceivers (2)
NOW published as ISO 24631 – 2

Performance of RFID-Devices

3 Performance of transponders
NOW published as ISO 24631 - 3

4 Performance of transceivers
NOW published as ISO 24631 - 4

Conformance, transponder

- Resonance frequency 134,2 (± 3)
- Animal ID-code
- Manufacturer / Country code
- Data block flag
- Retagging counter

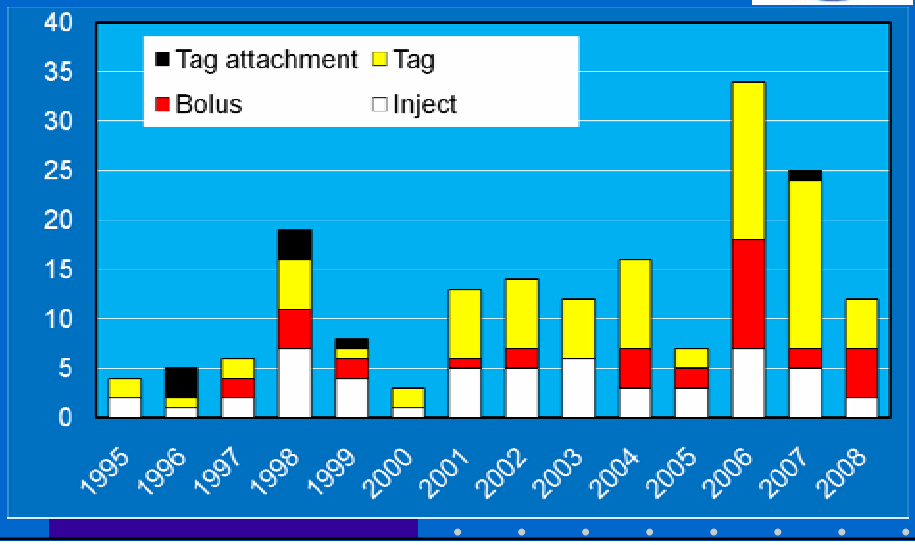
Conformance, transponder

- User information field
- Reserved field
- Animal bit
- CRC check (cyclic redundancy)

Participation in ICAR test

- 76 Manufacturers
  ... have participated in the conformance test
- 177 ICAR approved transponders
- 43 Manufacturers
  ... have submitted one single transponder
- 33 Manufacturers
  ... have submitted more than one transponder

Tests over years



Approved devices

- Conformance test
  - 81 ear tags
  - 53 injectables
  - 35 boluses
  - 8 tag attachments
  - 2 non synchronising portable readers
- Performance test
  - Results of first tests of transponders expected now

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Required performance

- Reading distance, electronic
  - transponders (test available)
  - readers (test available)
- Synchronising readers
- Locking mechanism
- Retention rate
- Endurance (chemical, physical)
- Reading distance, optical

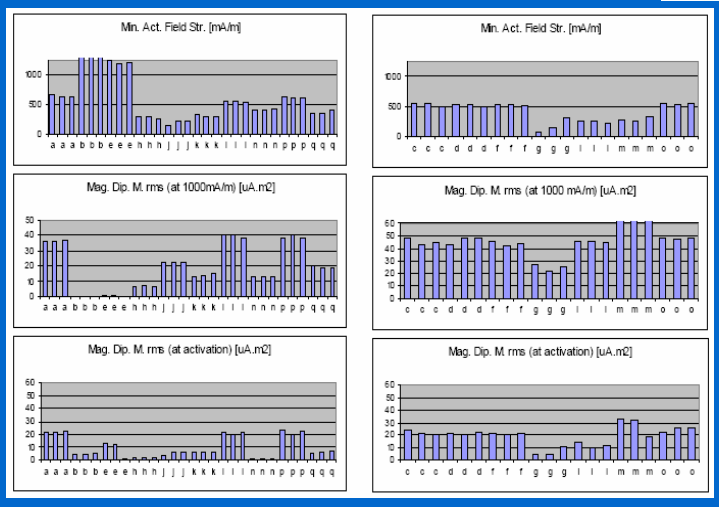
EID Reading distance

- Depends on both transponder and reader
- Stronger and weaker readers
- Stronger and weaker transponders
- Combinations
  - Strong transponder + weak reader may show same result as weak transponder + strong reader
- Environmental noise in the field

Reading distance for transponders

- **Three parameters:**
  - **Transponder minimum activating field strength**
    - Transponders activated by low field strength can be activated from a bigger distance. However influenced also by quality of signal processing of the reader.
  - **Transponder dipole moment**
    - The transponder dipole moment indicates the functioning of the transponder under different field strength conditions.
  - **Bit length stability (FDX-B) / Frequency stability (HDX)**
    - Test measuring the stability of signal produced by transponder. The more stable the signal, the better it can be demodulated (Important in less optimal reading conditions).

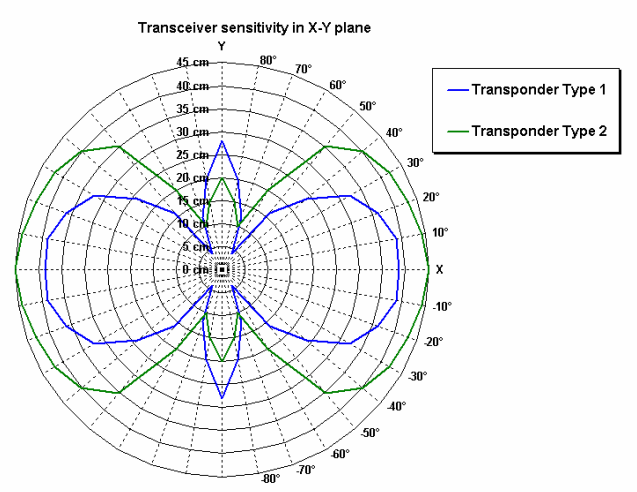
Field strength and dipole moment



Layman language

- ISO WG recommended requirements on
  - Minimum activation field strength
  - Dipole moment
  - Signal stability
- Different requirements for different applications
- Bridge the gap between ”reading distance” and more technical parameters

ICAR’s test of reading distance for handheld transceivers



The aim of ICAR

- To provide test and approval of ID-devices to benefit users worldwide
- Users are animal keepers, service providers and authorities
- ICAR's tests and approvals should be at a level of very high acceptance by users worldwide

Thank you for your attention

Ole Klejs Hansen
Chairman
ICAR Subcommittee on Animal Identification