Radio frequency identification of animals
The quality of product in the field

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Wageningen
The Netherlands
Livestock, endangered species, fish & companion animals

ISO 11784 / ISO 11785 official livestock schemes include:

- Australia (1998) - cattle
- Scrapie plan UK (2002) - sheep
- Cyprus (2004) - sheep
- Canada (2002) - cattle
- Botswana (1997) - cattle
- Uruguay (2005) - cattle
- Spain (2005) - sheep
- Italy regional:
  - Aosta (1998) - sheep & cattle
  - Sicily (2005) - sheep & cattle
  - Sardinia (2005) - sheep & cattle
- Most EU countries (2009) - sheep
- Denmark (2010) - cattle
ISO 11784 Coding RFID transponders

Country codes 000 – 899:

✓ Ireland 372
✓ United Kingdom 826

ICAR Registration authority manufacturer codes & product codes

Manufacturer codes 900 – 997:

✓ Shared Manufacturer Codes (900, …)
  • ARaymondlife (product code 900122, ID-code range: 240.000.000.000 - 240.000.999.999)
  • Dalton ID Limited (product code 900032, ID-code range: 060.000.000.000 - 060.000.999.999)
  • Royal Tag (product code 900041; ID-code range: 078.000.000.000 - 078.000.999.999)

✓ Unshared Manufacturer Codes (934 – 988 granted)
  • Caisley (manufacturer code 969, product codes: 969001 – 969008)
  • Allflex (manufacturer code 982, product codes: 982001 – 982049)
ISO 11785 HDX & FDX transponders

- Balanced reading change
- Synchronization (allowing use several readers on one location)
ISO 24631-1..5 test procedures

Test for Transponders and Readers

✓ Conformance tests
  • Granting of shared & unshared manufacturer code
  • Rules to be respected
  • ID-code conform structure ISO 11784
  • Air interface conform ISO 11785

✓ Performance tests
  • Strength of the signal
Tests reported on ICAR web pages

New initiative:

- Manufacturer declared available products

Pieter Hogewerf, IMA-Wageningen, 38th ICAR Session, Cork (Ireland), 28 May - 01 June 2012
Representation animal RFID information (ISO 24631-6)

Displaying ID information:

Data transfer ID information:
Reading transponders: synchronization of readers

Wireless synchronization:

- **Handheld transceivers**
  - Defined in ISO 11785
  - Test procedure ISO 24631-2
  - Reader used near static reader

- **Static transceivers**
  - Briefly defined in ISO 11785
  - Detailed description ISO 24631-7
  - When using several reader e.g. of different suppliers
Reading performance of transponders in the field

Reading quality:
- Impact electromagnetic disturbances
- Field of the transceiver
- Signal strength and quality of the transponder
- Quality of the transceiver
Transponders approval

Based on new transponders (50 or 10) selected by manufacturer
✓ Results of test center are communicated with registration authority
✓ Approval only valid for the specific product
✓ New test required if
  • Size of the tag changes
  • Moulding material of the tag changes
  • A different coil is used
  • Another type of integrated circuit is used (e.g. a different supplier)

✓ Manufacturers can have different integrated Circuit (IC) suppliers
  • All products shall have its own ICAR product code
  • Manufacturers can switch between suppliers

✓ Test results shall mention type of IC used
  • Motivates manufacturer to only market products with own product code
Transponders retesting

Approval tests
✓ checks ability of manufacturing transponders

Randomly testing new products from the market
✓ Motivates manufacturer: produce continuously high quality products
✓ Safeguard users for low or inconsistent quality products

Retesting products recovered from slaughterhouse
✓ Gives insight in infield use

Incessantly manufacturing inferior products withdrawal
✓ Product code or manufacturer code possible
Concluding remarks

✓ ISO 11784 and ISO 11785 is world wide used system

✓ Procedures for product approval in place

✓ Guarantying product composition & quality can be improved
  • Recording of the IC type
  • Checking transponder products from the market

✓ Impact in field use of transponders can be monitored
  • Checking transponders recovered from slaughterhouses
Questions?

Thank you for your attention!

Programmable code generator Agilent 33220A

Amplifier Research 25A250A amplifier

Agilent 54622D Oscilloscope

Rohde & Schwarz UHF attenuator

Labview 8.2 software IMA Wageningen

Helmholtz coils IMA Wageningen

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