

Radio frequency identification of animals

The quality of product in the field

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Animal RFID worldwide



Livestock, endangered species, fish & companion animals

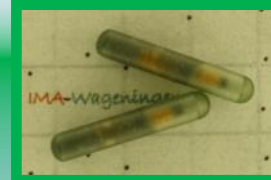
ISO 11784 / ISO 11785 official livestock schemes include:

- ✓ 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



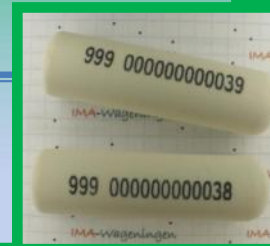


ISO 11784 Coding RFID transponders



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 24631-1..5 test procedures

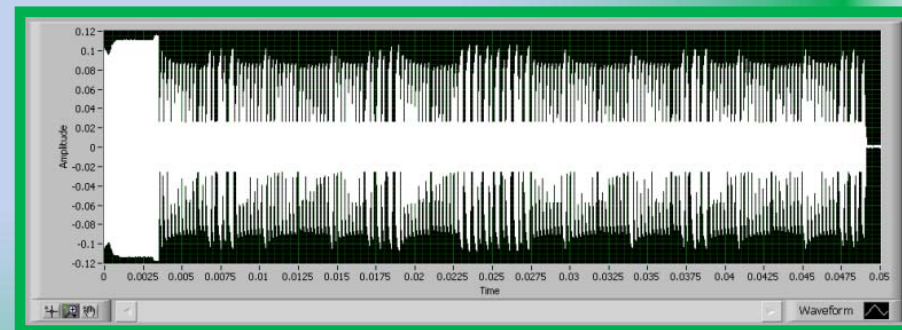
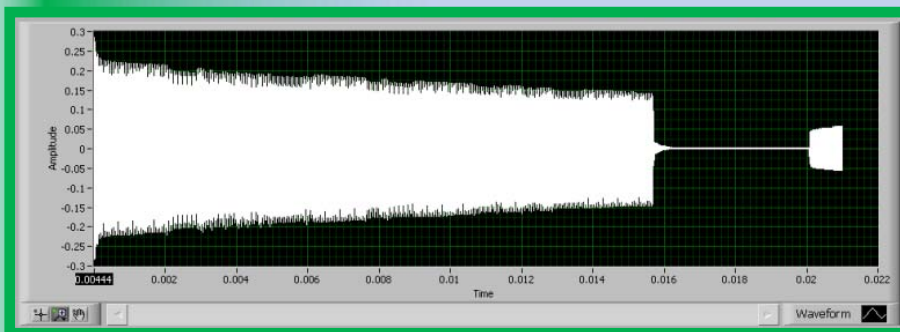
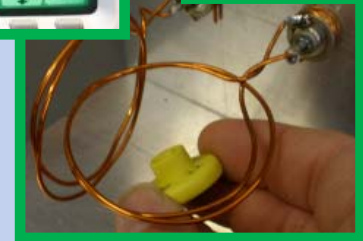
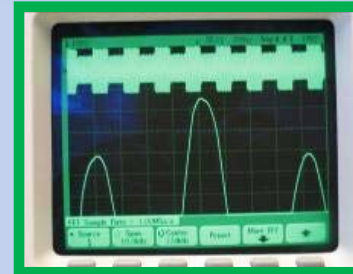
Test for Transponders and Readers

✓ Conformance tests

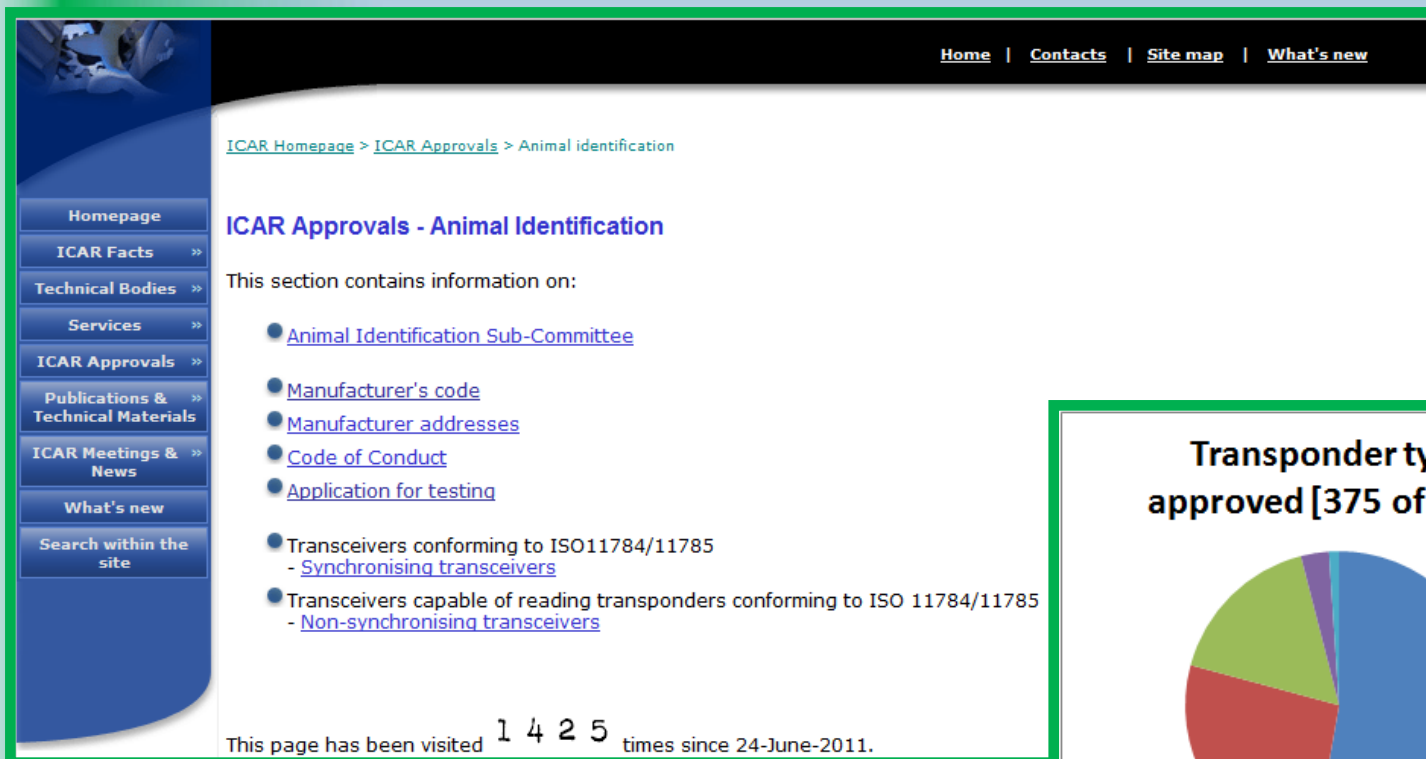
- Granting of shared & unshared manufacturer code
- Rules to be respected
- ID-code conform structure ISO 11784
- Air interface conform ISO 11785

✓ Performance tests

- Strength of the signal



Tests reported on ICAR web pages



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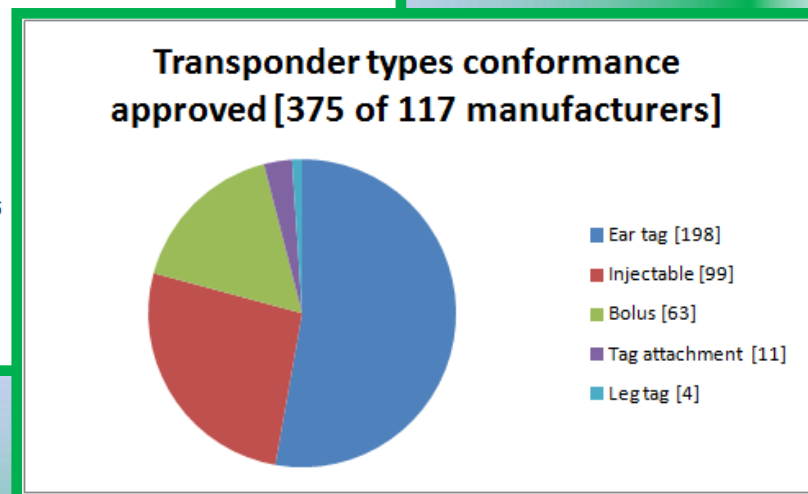
[ICAR Homepage](#) > [ICAR Approvals](#) > Animal identification

ICAR Approvals - Animal Identification

This section contains information on:

- [Animal Identification Sub-Committee](#)
- [Manufacturer's code](#)
- [Manufacturer addresses](#)
- [Code of Conduct](#)
- [Application for testing](#)
- Transceivers conforming to ISO11784/11785
 - [Synchronising transceivers](#)
- Transceivers capable of reading transponders conforming to ISO 11784/11785
 - [Non-synchronising transceivers](#)

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New initiative:

- ✓ Manufacturer declared available products



Reading transponders: synchronization of readers

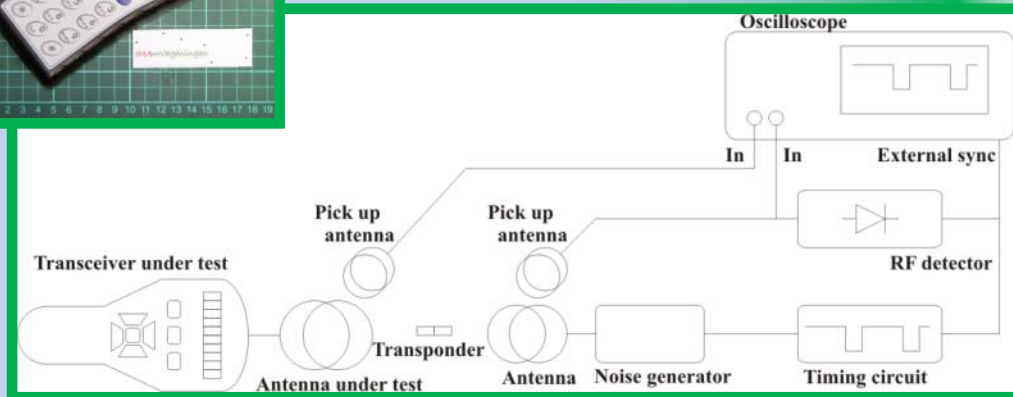
Wireless synchronization:

• Handheld transceivers

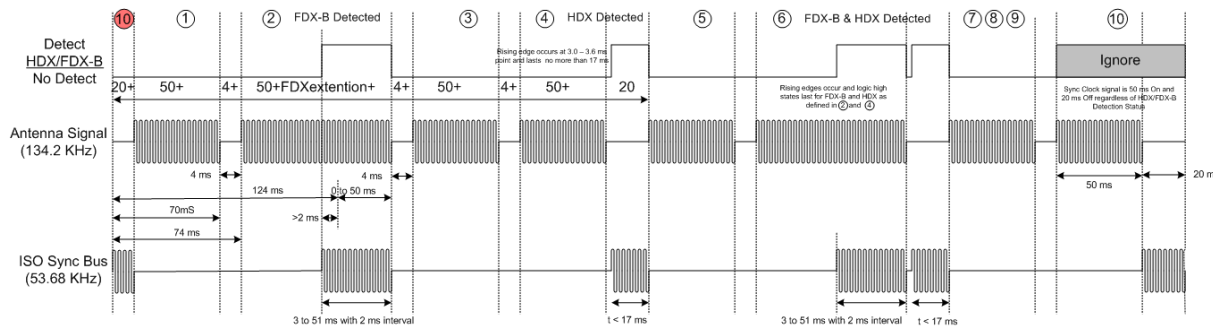
- Defined in ISO 11785
- Test procedure ISO 24631-2
- Reader used near static reader

• Static transceivers

- Briefly defined in ISO 11785
- Detailed description ISO 24631-7
- When using several reader e.g. of different suppliers



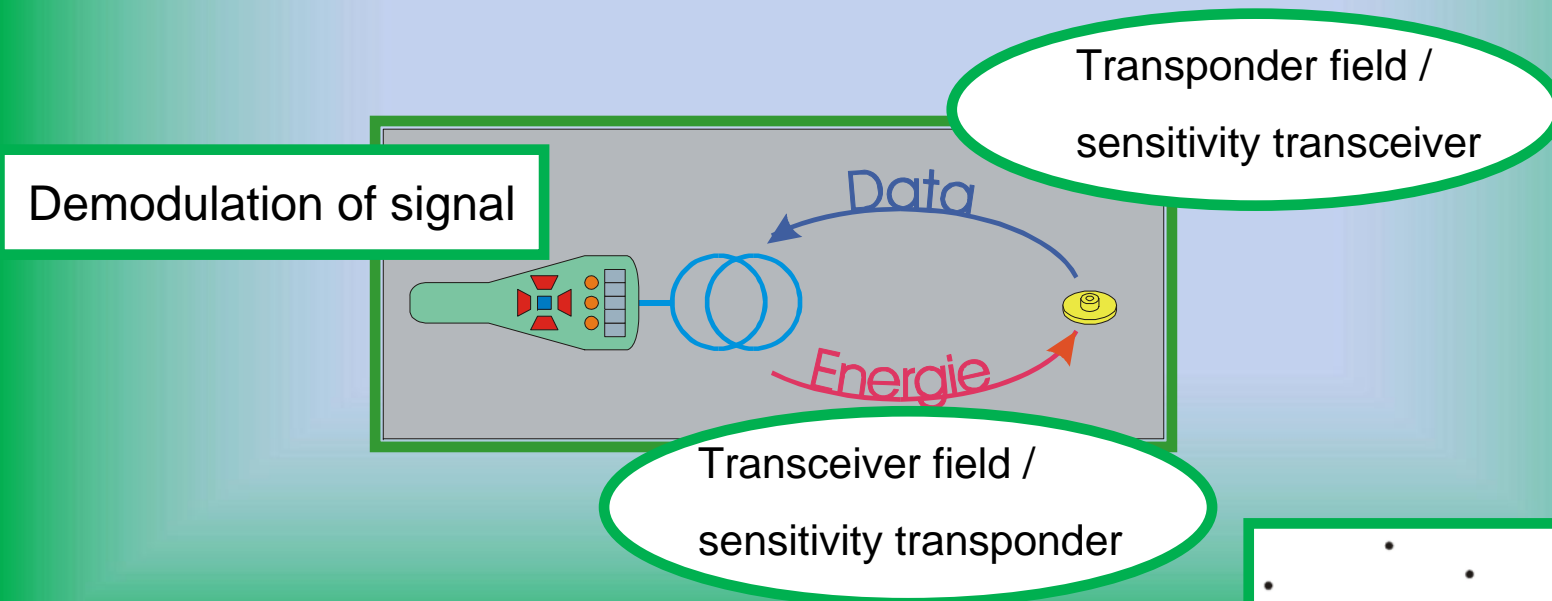
Busy Condition



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!



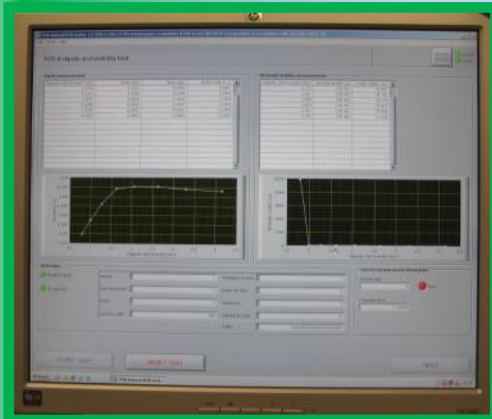
Programmable code generator Agilent 33220A



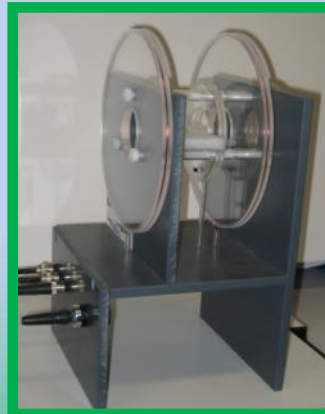
Agilent 54622D Oscilloscope



Amplifier Research 25A250A amplifier



Labview 8.2 software IMA Wageningen



Helmholtz coils IMA Wageningen



Rohde & Schwarz UHF attenuator

