



International
Standard

ISO 24631-1

**Radiofrequency identification of
animals —**

Part 1:
**Evaluation of conformance of RFID
transponders with ISO 11784 and
ISO 11785 (including granting and
use of a manufacturer code)**

Identification des animaux par radiofréquence —

*Partie 1: Évaluation de la conformité des transpondeurs RFID
à l'ISO 11784 et à l'ISO 11785 (y compris l'attribution et
l'utilisation d'un code de fabricant)*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 19, *Agricultural electronics*.

This third edition cancels and replaces the second edition (ISO 24631-1:2017), which has been technically revised.

The main changes are as follows:

- Annexes C, E and F of the previous edition have been moved to ISO 11784, and subsequent annexes have been renumbered.

A list of all parts in the ISO 24631 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

ISO has appointed a registration authority (RA) competent to register manufacturer codes used in the radiofrequency identification (RFID) of animals in accordance with ISO 11784 and ISO 11785 (see ISO 11784).

This document deals with the conformance of RFID transponders, of which the main types used for animal identification are

- injectable transponders,
- electronic ear tag transponders,
- electronic ruminal bolus transponders,
- leg tag transponders, and
- tag attachments.

The test procedures specified in this document are recognized by the Federation of European Companion Animals Veterinary Association (FECAVA) and World Small Animal Veterinarian Association (WSAVA) and, as such, can also be applied to companion animals.

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Radiofrequency identification of animals —

Part 1:

Evaluation of conformance of RFID transponders with ISO 11784 and ISO 11785 (including granting and use of a manufacturer code)

1 Scope

This document provides the means of evaluating the conformance with ISO 11784 and ISO 11785 of radiofrequency identification (RFID) transponders used in the individual identification of animals. It sets forth the conditions for the granting and use of the manufacturer code related to a transponder and the associated rights and obligations of the parties involved in the issuance of the code.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11784, *Radio frequency identification of animals — Code structure*

ISO 11785:1996, *Radio frequency identification of animals — Technical concept*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

activation field

electromagnetic field with a frequency of 134,2 kHz

3.2

country code

three-digit numeric code representing a country in accordance with ISO 3166-1

3.3

identification code

code used to identify the animal individually, at the national and, in combination with a *country code* (3.2), international levels

Note 1 to entry: It is a national responsibility to ensure the uniqueness of national ID codes.

3.4

laboratory reference transceiver

transceiver used to test the transponders generating the *activation field* (3.1), able to read FDX-B and HDX transponders

3.5

manufacturer

company that submits an application for conformance testing or for the granting and use of a *manufacturer code* (3.8) for transponders in conformance with ISO 11784 and ISO 11785 while accepting the conditions set forth in [Annex B](#), ISO 11784:2024, Annex B or ISO 11784:2024, Annex C

Note 1 to entry: see also ISO 11784:2024, Annex A

3.6

manufacturer code

MFC

three-digit number granted by the *RA* (3.13) to a *manufacturer* (3.5) under the conditions set forth in ISO 11784:2024, Annex C, whose range and placement within the code structure are in accordance with ISO 11784

Note 1 to entry: Only one manufacturer code is granted to the same manufacturer.

3.7

primary transponder packaging

primary protective layer of transponder components

3.8

product code

six-digit number granted (and registered) by the *registration authority* (3.13) to a *manufacturer* (3.5) for a certain type of transponder, formatted such that its first part is the *manufacturer code* (3.6) and its second part is a three-digit serial number

3.9

purchaser

person, organization or company that receives legal ownership of equipment by a transaction involving that equipment

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3.10

RA-recognized test centre

test centre meeting the criteria of the *registration authority* (3.13)

3.11

RA-registered transponder

transponder registered by the *registration authority* (3.13)

3.12

RA-registered manufacturer

manufacturer (3.5) with one or more *RA-registered transponders* (3.11)

3.13

registration authority

RA

entity that approves test laboratories and issues and registers *manufacturer* (3.5) and *product codes* (3.8)

3.14

retagging

process that assigns to a new transponder the same identification number as a *transponder* (3.19) that has been lost or that is no longer readable

3.15

retagging counter

three-bit field for counting the number of *retagging* (3.14)

3.16

shared manufacturer code

three-digit number granted by the *registration authority* (3.13) to a *manufacturer* (3.5) according to ISO 11784:2024, Annex C

Note 1 to entry: A shared manufacturer code can be granted to more than one manufacturer.

3.17

secondary transponder packaging

additional layers to *primary transponder packaging* (3.7)

3.18

transceiver

device used to communicate with the *transponder* (3.19)

3.19

transponder

radiofrequency identification (RFID) device that transmits its stored information when activated by a *transceiver* (3.18) and that may be able to store new information

Note 1 to entry: A transponder can be characterized according to its components (chip, coil, capacitor, etc.), communication protocol, size, shape and packaging, or any additional characteristics that could change its properties. The main types are defined in 3.19.1 to 3.19.5.

3.19.1

injectable transponder

small *transponder* (3.19) encapsulated in a biocompatible material with porosity equivalent to that of glass able to be injected into an animal's body

3.19.2

electronic ear tag transponder

plastic-covered *transponder* (3.19) able to be fixed to the ear of the animal using a locking mechanism or to be attached to an ear tag such that it cannot be removed from the tag without damaging it

3.19.3

electronic ruminal bolus transponder

transponder (3.19) placed into a high specific gravity container able to be orally administered to a ruminant, which remains permanently in its fore stomach

3.19.4

tag attachment

transponder components covered by a primary protection layer and meant for producing one or more of the three other main transponder types or other types of animal transponder

3.19.5

leg tag transponder

plastic-covered *transponder* (3.19) able to be fixed to the leg of the animal using a locking mechanism

3.20

user information field

five-bit field for additional user information, used only in conjunction with the *country code* (3.2)

4 Abbreviated terms

CRC	cyclic redundancy check
FDX-B	full duplex communication protocol (conforming to ISO 11785, excluding protocols mentioned in ISO 11785:1996, Annex A)
HDX	half duplex communication protocol
MFC	manufacturer code
RA	registration authority
RFID	radiofrequency identification

5 Conformance

Test centres recognized by the registration authority (RA) shall perform transponder testing using the procedures specified in [Clause 7](#), and shall report the test results to the RA. These tests are in accordance with the technical requirements of ISO 11784 and ISO 11785. The manufacturer shall apply for transponder testing by completing and submitting to the RA the application form provided in [Annex A](#), while agreeing to abide by the code of conduct set forth in [Annex B](#) (see also ISO 11784:2024, Annex A). Registration depends on the transponder product passing the tests in [Clause 7](#). A product code consisting of a manufacturer code and serial number is issued to a transponder that is registered by the RA. The conditions attached to use of this registration by the manufacturer are laid down in ISO 11784:2024, Annex B.

Transponders for which conformance with ISO 11784 is claimed shall carry a numeric-3 code in accordance with ISO 3166-1, where numbers up to 900 refer to countries and numbers from 900 to 998 indicate individual manufacturers.

Use of a manufacturer code is only permitted to the manufacturer who has been issued that code by the RA. The application form for obtaining the manufacturer code shall be in accordance with [Annex C](#) while the rules for its granting and use are set forth in ISO 11784:2024, Annex C.

If the RA receives unmistakable evidence of conditions mentioned in [Annex B](#) (see also ISO 11784:2024, Annex A), ISO 11784:2024, Annex B or ISO 11784:2024, Annex C being disrespected, the RA shall apply the steps in ISO 11784:2024, Annex D.

6 Application

6.1 The manufacturer may apply for either a full (see [7.2](#)) or limited (see [7.3](#)) test or for a listing update (see [7.4](#)).

a) Full test — Category A

Applicable when:

- 1) a manufacturer is not yet registered by the RA (no tested product and no MFC);
- 2) an RA-registered manufacturer uses new silicon (integrated circuit) or new technology (HDX or FDX-B) in the transponder;
- 3) an RA-registered manufacturer changes his coil technology (ferrite vs. air coils).

b) Limited test — Category B

Applicable when:

- 1) an RA-registered manufacturer inserts previously RA-registered transponder hardware (silicon plus coil) into a different primary transponder packaging material;