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**Radio frequency identification of  
animals — Standardization of injection  
sites for different animal species —**

**Part 1:  
Companion animals (cats and dogs)**

**iTeh STANDARD PREVIEW**  
*Identification des animaux par radiofréquence — Normalisation des  
sites d'injection pour différentes espèces d'animaux —  
Partie 1: Animaux de compagnie (chiens et chats)*  
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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 documents 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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword — Supplementary information](#).

The committee responsible for this document is ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 19, *Agricultural electronics*.

ISO 15639 consists of the following part, under the general title *Radio frequency identification of animals — Standardization of injection sites for different animal species*:

— *Part 1: Companion animals (cats and dogs)*

Future parts are planned.

## Introduction

Since 1989, animals around the world started to be identified with injectable tube implants. At that stage, there was no standardized technology and also no standardized method of using these implants.

Since 1996, ISO 11784 and ISO 11785 are in force and many countries around the world rely on these technical standards. The ISO 11784 and ISO 11785 technologies are used to identify animals with ear tag transponders, bolus transponders, leg tag transponders, and injectable tube transponders. There is no clear guideline to which international regulations can refer to where to inject the tube. This needs to be standardized for all animal species which are identified with these injectable tube transponders.

The standardized methods of identifying species allow a quick, reliable, and effective reading of animal identification codes and a reliable recovery of the injectable tube transponder when animals are slaughtered.

This part of ISO 15639 is relevant for veterinarians, animal owners, and authorities responsible for checking the identification of animals (e.g. customs offices, veterinary clinics, shelters, and slaughterhouses).

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# Radio frequency identification of animals — Standardization of injection sites for different animal species —

## Part 1: Companion animals (cats and dogs)

### 1 Scope

The standardization of the injection sites of animal species is related to different species and several fields of interest.

After decades of market experience, migration of the transponder is still a problem in most animal species being identified by injectable transponders. Migration is related to several factors. The major issues are the injection site and the application of the injectable transponder but the correct injection site can be dictated by the dimensions (length and diameter) of the injectable transponder. In dogs and cats, this is not a big issue as the transponders used are the smallest readily available. There are several publications which precisely describe the application of injectable transponders anatomically but there is a demand from the community to have a comprehensive overview of all aspects related to the application and use of injectable transponders for different animal species.

### 2 Normative references (standards.iteh.ai)

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11784:1996, *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.

#### 3.1

##### **transceiver (reader)**

device, according to ISO 11785, used to communicate with the transponder

#### 3.2

##### **transponder**

radio frequency identification (RFID) device that transmits its stored information when activated by a transceiver and that can be able to store new information

#### 3.3

##### **FDX-B/HDX transceiver (reader)**

transceiver that reads at least both FDX-B and HDX transponders, as defined in ISO 11784 and ISO 11785

#### 3.4

##### **FDX/HDX transponder**

RFID device that transmits its transponder code, according to ISO 11784 and ISO 11785, when activated by a transceiver

### 3.5

#### **advanced transponder**

ISO 14223 transponder, compatible according to ISO 11785, with additional functionality (e.g. anti-collision, sensor measurements) and memory options

### 3.6

#### **paraveterinary workers**

non-veterinarians having made a particular training on injecting transponders into animals

## 4 Abbreviated Terms

EID	electronic identification
FDX-A	full duplex communication protocols as referred to in ISO 11785:1996, Annex A
FDX-B	full duplex communication protocol (conforming to ISO 11785)
HDX	half duplex communication protocol
RFID	radio frequency identification device

## 5 Identification of animals with injectable transponders

### 5.1 General

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A transponder is the link between an animal and information about the animal in a database. It is preferable to register animals in internationally accessible and nationally recognized databases.

Injectable transponders may be injected parenterally in most animal species and theoretically in any site where injection is possible. From a practical point of view, injection sites should meet the following conditions:

a) Animal size and physiological development

To be considered in order to minimize the effect of the application of the device on the animal's physiology.

b) Migration rate

Migration should be minimized by injecting the transponder in areas with low migration rate.

c) Breakage risk

The bigger the device, the more risk of breakage there is, although this is a very rare phenomenon. There is evidently more risk in superficial injection sites, such as subcutaneous injection, due to the exposure to impacts, bites, etc.

d) Reading distance required

Reading distance is proportional to the size of the transponder and the antenna of the reader. Very small devices are not registered properly in dynamic reading.

The following are the other factors to be considered:

- Injection site shall entail the minimum risk and stress possible for the animal. Therefore, devices should not be injected in highly vascularised or sensitive areas, such as the hoof or the axilla skinfold. Also, areas close to important organs should be avoided, such as eyelids.
- The injection site shall be easily accessed both for injection and reading of the device. It should be safe for the user to implant and read the device.



- The injection site shall be located in a reasonably clean area of the body. Special care should be taken with sites such as the perianal region or the distal portions of the extremities.
- Impact areas, where the animal is subject to frequent traumas, should be avoided.
- The site shall possess anatomic characteristics that facilitate the natural retention of the devices, reducing migration.

Since injectable transponders are applied parenterally and this is generally considered a clinical procedure, only veterinarians and paraveterinary workers should be allowed to carry out this practice.

There are many animal species that are treated as companion animals but are not mentioned in this part of ISO 15639. They will be mentioned in a future part of ISO 15639.

Due to the use of the two implantation sites, veterinarians and paraveterinary workers should review and follow the scanning procedures as discussed in this part of ISO 15639.

## 5.2 Companion animals: Canine and feline (dogs and cats)

The transponders have to be put subcutaneously in the canine and feline. The following are two recognized implantation sites in use worldwide.

- a) The transponder (containing a microchip) is implanted in the left side of the body in the cranial third of the neck between ear and shoulder (see [Figure 1](#)).
  - Position of the insertion point: From the dorsoventral midline of the neck at the caudoventral edge of the ear 1 cm to 6 cm (one to four fingers, depending on the size and the breed) of the distance to the anterior edge of the shoulder blade.
  - Direction: Insert the cannula anteroventrally and place the transponder subcutaneously so that the position of the transponder is at a 90° angle to the jugular vein.

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