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Identifcation des animaux par radiofrquence — Concept technique

Radio-frequency identification of animals — Technical concept

Identification des animaux par radiofréquence — Concept technique



Reference number
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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 11785 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 19, *Agricultural electronics*.

Annexes A and B form an integral part of this International Standard. Annex C is for information only.

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Introduction

The technical concept of animal identification described is based upon the principle of radio-frequency identification (RFID). ISO 11785 is applicable in connection with ISO 11784 which describes the structure and the information content of the codes stored in the transponder.

The International Organization for Standardization (ISO) draws attention to the fact that compliance with clause 6 and annex A of this International Standard may involve the use of patents concerning methods of transmission.

ISO takes no position concerning the evidence, validity and scope of these patent rights.

The following patent holder has assured ISO that he will not exert its patent rights concerning FDX B technology:

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The following patent holders have assured ISO that they are willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holders of these patents rights are registered with ISO:

Destron Fearing Corporation
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Attention is moreover drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights other than those identified above. ISO shall not be held responsible for identifying any or all such patent rights. In that connection, additional correspondences were received from two other companies (AVID and EID) not willing to forward pertinent declaration in accordance with the current ISO Directives.

Copies of declarations and statements received from all the above mentioned companies are available upon request to the ISO Central Secretariat.

Radio-frequency identification of animals — Technical concept

1 Scope

This International Standard specifies how a transponder is activated and how the stored information is transferred to a transceiver.

2 Conformance

Transponders are in conformance with this International Standard provided they meet the requirements given in clause 6 of this International Standard. Transceivers are in conformance with this International Standard provided they meet the requirements given in clause 6 and annex A, if the latter is applicable.

In order to allow a smooth transition from the different transponders presently in use to those complying with this International Standard, transponders meeting the requirements of annex A may be applied for a transition period of two years from the date of the first edition of this International Standard.

3 Normative references

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 11784:1996, *Radio-frequency identification of animals — Code structure*.

4 Definitions

For the purposes of this International Standard, the following definitions apply.

- 4.1 activation field:** Electromagnetic field transmitted by a transceiver to energize and/or activate a transponder.
- 4.2 activation frequency:** Frequency of the activation field.
- 4.3 activation period:** Time duration of the activation signal.

- 4.4 bit rate:** Number of bits transmitted per second.
- 4.5 differential bi-phase encoding:** Method of encoding in which data bit 0 is represented by a mid-bit transition; data bit 1 is represented by no transition; and there is always a transition in between two bits.
- 4.6 encoding:** One to one relationship between basic information elements and modulation patterns.
- 4.7 error detection code:** Bits that contain information which can be used to detect errors.
- 4.8 frequency shift keying:** Binary information is superimposed onto a carrier electromagnetic field by shifting between discrete frequencies of the field.
- 4.9 full duplex:** Method of information exchange in which the information is communicated while the transceiver transmits the activation field.
- 4.10 half duplex:** Method of information exchange in which the information is communicated after the transceiver has stopped transmitting the activation field.
- 4.11 header:** Bits transmitted before the useful information, uniquely identifying the start of a page, which may also be used for synchronization of the transponder and the transceiver.
- 4.12 identification code:** 64 bits of the identification telegram which are specified in ISO 11784.
- 4.13 identification telegram:** The total identification message (header, identification code, error detection code and trailer), possibly repeatedly transmitted by the transponder upon activation.
- 4.14 mobile transceiver:** Transceiver that is not connected to other transceivers when these are in its vicinity to synchronize activation periods and pauses.
- 4.15 modulation:** Method of superimposing information onto an electromagnetic field by means of varying a specific parameter of the field.
- 4.16 non-return to zero encoding:** Method of encoding in which data bit 1 is a high signal and data bit 0 is a low signal.
- 4.17 page:** A coherent part of the communicated information.
- 4.18 phase shift keying:** Binary information is superimposed onto a carrier electromagnetic field by introducing discrete phase shifts of the field.
- 4.19 stationary transceiver:** Transceiver that is connected to other transceivers when these are in its vicinity to synchronize activation periods and pauses.
- 4.20 trailer:** Bits transmitted after the error detection code; the content of which is dependent upon the value of the flag for an additional data block which is specified in ISO 11784.
- 4.21 transceiver:** Device used to communicate with a transponder.
- 4.22 transponder:** Device which transmits its stored information when activated by a transceiver and may be able to store new information.