INTERNATIONAL STANDARD

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Radio frequency identification of animals —

Part 5: Procedure for testing the capability of RFID transceivers of reading ISO 11784 and ISO 11785 transponders

Identification des animaux par radiofréquence —
Partie 5: Procédure pour vérifier les capacités des émetteurs-récepteurs à lire des transpondeurs RFID conformes à l'ISO 11784 et à l'ISO 11785

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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 (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 (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 24631 consists of the following parts, under the general title *Radio frequency 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)*

— *Part 2: Evaluation of conformance of RFID transceivers with* ISO 11784 *and* ISO 11785

— *Part 3: Evaluation of performance of RFID transponders conforming with* ISO 11784 *and* ISO 11785

— *Part 4: Evaluation of performance of RFID transceivers conforming with* ISO 11784 *and* ISO 11785

— *Part 5: Procedure for testing the capability of RFID transceivers of reading* ISO 11784 *and* ISO 11785 *transponders*

— *Part 6: Representation of animal identification information (visual display/data transfer)*

— *Part 7: Synchronization of* ISO 11785 *identification systems*

Introduction

ISO has appointed ICAR (International Committee for Animal Recording) as the registration authority (RA) competent to register manufacturer codes used in the radio frequency identification (RFID) of animals in accordance with ISO 11784 and ISO 11785.

ISO 24631 defines means, based upon ICAR test procedures[1], for evaluating and verifying both the conformance and performance of RFID devices in respect of ISO 11784 and ISO 11785. Only those results emanating from RA-approved test centres are recognized.

This part of ISO 24631 deals with the capability of RFID transceivers of reading ISO 11784 and ISO 11785 transponders.

Radio frequency identification of animals —

Part 5: Procedure for testing the capability of RFID transceivers of reading ISO 11784 and ISO 11785 transponders

1 Scope

This part of ISO 24631 specifies rules and procedures for verifying the capability of RFID transceivers of reading transponders used in individual animal identification complying to ISO 11784 and ISO 11785. In addition, this part of ISO 24631 specifies how to apply for an approval and the rights and duties to use this approval. This part of ISO 24631 does not set out the procedures for evaluating wireless synchronised mobile transceivers and also this document contains no provision for evaluating wired synchronisation of stationary transceivers.

This test differs from ISO 24631-2, which is intended for testing transceivers with all mandatory features described in ISO 11784 and ISO 11785. The test described here is intended for cost-effective non-synchronising transceivers that are capable of reading transponders complying to ISO 11784 and ISO 11785 but have no synchronisation capability and does not have to support the dual adaptive protocol. Furthermore, the activation field frequency accuracy is more relaxed.

2 Conformance

The procedures of this part of ISO 24631 include the options of RA approval and registration of transceiver equipment. The procedures of this part of ISO 24631 shall be followed if a company wants RA approval and registration of a transceiver.

The test procedures given in Clause 7 of this part of ISO 24631 specify the procedure how to verify RFID-transceivers' capability of reading transponders complying to ISO 11784 and ISO 11785. RA-approved test centres carry out transceiver tests in conformance with these procedures and report the results to the RA. A transceiver test approval is granted to a company whose transceiver product has passed the tests mentioned in Clause 7. Approved transceiver products receive an approval reference number. To apply for an approval reference number, an application form (Annex A) shall be completed, signed, and submitted to the RA. In order to standardize the use of the test approval, the conditions for the right of using this approval are given in Annex B.

3 Normative reference

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 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

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

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

ISO 24631-1:2009, *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)*

4 Terms and definitions

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

4.1
approval reference number
number issued to the manufacturer of an approved transceiver by the registration authority

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Note 1 to entry: It comprises the reference of the International Standard for which approval is made, the year of issue (four digits) and the running number (three digits), referencing the transceivers tested successfully during that year.

4.2
country code
three-digit numeric code representing the name of a country in accordance with ISO 3166-1

4.3
ISO 11784 and ISO 11785 transceiver
transceiver that reads at least both ISO FDX-B and ISO HDX transponders as defined in ISO 11784 and ISO 11785

4.4
ISO 11784 and ISO 11785 transponder
radio frequency identification (RFID) device that transmits its transponder code according to ISO 11784 and ISO 11785 when activated by a transceiver

4.5
manufacturer
company that submitted the application for conformance testing in conformance with ISO 11784 and ISO 11785

4.6
manufacturer code
three-digit number granted by the RA to a manufacturer under the conditions set forth in ISO 24631-1:2009, Annex E, 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.

4.7
RA-approved test centre
accredited test centre meeting the criteria of the registration authority

Note 1 to entry: Accreditation: third-party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks (see Reference [2]).

4.8
RA-approved transponder
transponder approved by the registration authority

4.9
reference transponder
transponder that is used to test a transceiver, selected from the different RA-approved transponder types

4.10
registration authority
RA
entity that approves test laboratories and issues and registers manufacturer and product codes

4.11
transceiver
device used to communicate with the transponder

4.12
transponder
radio frequency identification (RFID) device that transmits its stored information when activated by a transceiver and that may be able to store new information

Note 1 to entry: See ISO 24631-1 for definitions of the main types.

4.13
transponder code
code as programmed in the transponder and defined in ISO 11784:1996, Table 1 and ISO 11785

5 Abbreviations

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

RF radio frequency

RFID radio frequency identification

6 Application

6.1 The manufacturer can apply for a conformance test for a transceiver capable of reading ISO 11784 and ISO 11785 transponders.

6.2 The application submitted to the RA shall consist of a covering letter together with the application form presented in Annex A. The RA shall confirm receipt of the application to the manufacturer within two weeks. By signing the application form, the manufacturer agrees to fulfil the provisions of this part of ISO 24631.

6.3 The test centres shall be approved by the RA.

6.4 The RA maintains a list of approved test centres, from which the manufacturer may choose the centre that will test his transceiver product.

6.5 The manufacturer shall send a transceiver and all the necessary accessories to the RA-approved test centre. The manufacturer shall ensure that the equipment is able to display or store the transponder codes during the test.

6.6 The RA-approved test centre shall verify the transceivers using the test procedures specified in Clause 7. All reference transponders shall be readable by the transceiver under test. The codes read shall match the known codes of the reference transponders.

6.7 The RA-approved test centre shall prepare a confidential report of the results and shall send two copies (and an electronic version) of the report to the chairman of the RA.