INTERNATIONAL STANDARD

**ISO
24631-6**

Radiofrequency identification of animals —

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

Identification des animaux par radiofréquence —

Partie 6: Représentation de l'information relative à l'identification des animaux (affichage visuel/transfert des données)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 24631-6:2011
https://standards.iteh.ai/catalog/standards/sist/af86efda-5886-42f5-8b8c-
36864007ba72/iso-24631-6-2011

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 24631-6:2011
https://standards.iteh.ai/catalog/standards/sist/af86efda-5886-42f5-8b8c-
36864007ba72/iso-24631-6-2011

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 24631-6 was prepared by Technical Committee 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 *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)*

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

A procedure for testing the capability of RFID transceivers to read ISO 11784 and ISO 11785 transponders and the synchronization of identification systems conforming with ISO 11785 are to form the subjects of future parts 5 and 7.

Introduction

ISO has appointed ICAR (International Committee for Animal Recording) as the registration authority (RA) competent to register manufacturer codes used in the radiofrequency 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 representation of information on RFID transceivers, in communications with all four main types of RFID transponder used for animal identification (defined, as follows, in ISO 24631-1):

— injectable transponders (small transponder able to be injected into an animal's body and encapsulated in a biocompatible and non-porous material such as glass);

— electronic ear tag transponders (plastic-covered transponder 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);

— electronic ruminal bolus transponders (transponder placed into a high specific-gravity container able to be orally administered to a ruminant, which remains permanently in its forestomach);

— tag attachments (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).

Radiofrequency identification of animals —

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

1 Scope

This part of ISO 24631 specifies the representation of the animal identification information specified in ISO 11784 and ISO 11785 on a transceiver display and its communication from transceivers to systems in which the information may be stored in a database, used for process control or displayed.

2 Normative reference

The following referenced documents are indispensable for the application 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 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO/IEC 8859-15, *Information technology — 8-bit single-byte coded graphic character sets — Part 15: Latin alphabet No. 9*

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

ISO 11785, *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)*

3 Terms and definitions

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

3.1
animal code
bit pattern to identify an animal

[ISO 11784]

3.2
country code
three-digit numeric code representing a country in accordance with ISO 3166-1

3.3
identification code
part of the code that is used for identification (control codes such as header, trailer and checksum are excluded)

[ISO 11784]

3.4
interface
link between transceiver and data terminal

3.5
manufacturer code
MFC
three-digit number granted by the registration authority (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   Only one manufacturer code is granted to the same manufacturer.

[ISO 11784]

3.6
national identification code
code field with a unique number within a country

[ISO 24631-1]

3.7
transceiver
device used to communicate with a transponder

[ISO 24631-1]

3.8
transponder
radiofrequency identification (RFID) device that transmits its stored information when activated by a transceiver and that may be able to store new information

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO 24631-1]

3.9
retagging
process that assigns to a new transponder the same identification number as a transponder that has been lost or that is no longer readable

ISO 24631-6:2011
https://standards.iteh.ai/catalog/standards/sist/af86efda-5886-42f5-8b8c-
36864007ba72/iso-24631-6-2011

[ISO 24631-1]

3.10
retagging counter
three-bit counter for counting the number of retagging

[ISO 24631-1]

3.11
user information field
five-bit field for additional user information, used only in conjunction with a country code

[ISO 24631-1]

4   Information representation

4.1   General

The animal code consists of the combination of a country code and national identification code or of a manufacturer code and an identification code. Both combinations provide a unique worldwide identification number.

In either combination, the animal code consists of 15 decimal digits, split into either a numeric-3 country code in accordance with ISO 3166-1 or a manufacturer code and decimal numeric-12 (national) identification code.

The retagging counter shall be used only if the duplication of an identification number is permitted by the competent authority of the country, as coded in the country code field (numeric-3). This counter shall be zero for the first version of a transponder assigned to an animal. If further versions of transponders for the same

2

animal are necessary due to loss or malfunction, the identification number shall be the same, but the retagging counter shall be incremented by 1. The retagging counter is a numeric-1 value.

The user information field may contain data as defined by the competent authority of a country in accordance with ISO 3166-1; this field has a numeric-2 value.

The use of the retagging counter and user information field is only allowed in combination with a country code.

Additional information fields are the reserved field, the RUDI-bit (reference to user data inside the transponder memory) and the flag indicating the existence of a data block.

The transceiver shall display eight-bit decimal characters in the range of hexadecimal 20, 30–39. The communication link shall communicate eight-bit decimal characters in the range of hexadecimal 02, 0A, 0D, 30–39. Characters shall be interpreted in accordance with ISO/IEC 8859-15.

4.2   Representation of information on transceiver display

A transceiver display shall be able to display at least one line of 16 characters or two lines of eight characters, simultaneously or sequentially. See Figure 1.
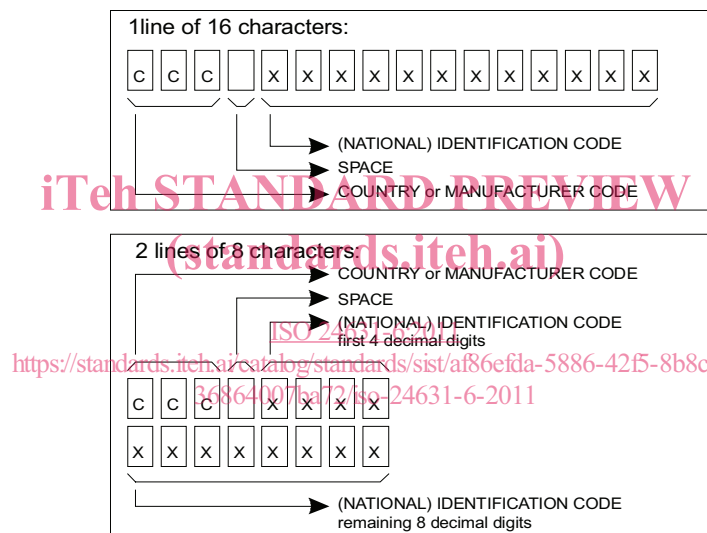

Figure 1 — Representation of identification code on transceiver display

The two parts of the animal code in accordance with ISO 11784 are displayed (country code and national identification code, or manufacturer code and identification code), separated by a space. The first three characters display the decimal numeric-3 country code or manufacturer code, the fourth character is always a space and the remaining characters (5 to 16) are used to display the decimal numeric-12 (national) identification code.

Transceivers able to display the retagging counter and the user information field value may use two lines of eight characters each, displaying 16 characters, or three lines of eight characters each, displaying 24 characters. Lines can be displayed simultaneously or sequentially; if sequentially, it shall be unmistakably clear which is the first line of the ID code. See Figure 2.
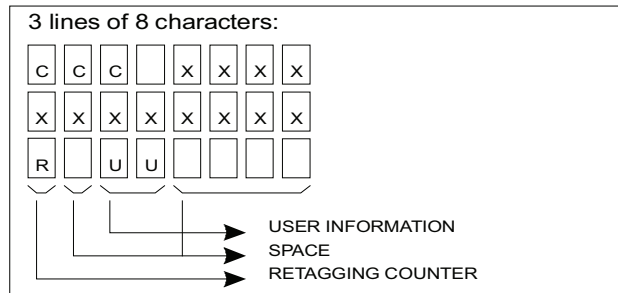
Figure 2 — Representation of retagging counter and user information on transceiver display

The retagging counter value and the user information field value shall be separated by a space. The retag counter shall be indicated using one digit (e.g. 1), the user information shall be indicated using two digits (e.g. 04).

Transceivers having the ability to display the retagging counter, the user information field value and a value representing the additional information fields shall use two lines of eight characters each, displaying 16 characters, or three lines of eight characters each, displaying 24 characters, or two lines of 16 characters each, displaying 32 characters. Lines can be displayed simultaneously or sequentially; if sequentially, it shall be unmistakably clear which is the first line of the ID code. See Figure 3.
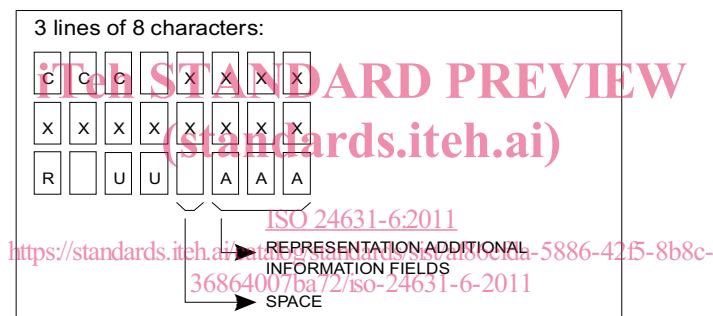

Figure 3 — Representation of additional information fields on transceiver display

The retagging counter value, user information field value and value representing the additional information fields shall be separated by a space. The value representing the additional information fields shall be indicated using three digits (e.g. 000).

Transceivers are allowed to display additional information, for example that available in the transceiver memory, and can be used for management purposes.

Users may optionally switch a transceiver to a mode where the information is displayed in formats different from those described in this part of ISO 24631.

EXAMPLE   A farmer who uses a transceiver for process control on his farm may only be interested in the last four or five digits of the ID code.

4.3   Transmission of information by a communication link (including optional time stamp)

Transceivers that have the ability to communicate the animal code in accordance with ISO 11784 by a communication link (e.g. RS232 or USB) shall communicate the information in the ASCII format as presented in Figure 4. Every line starts with STX (0x02, start of text).
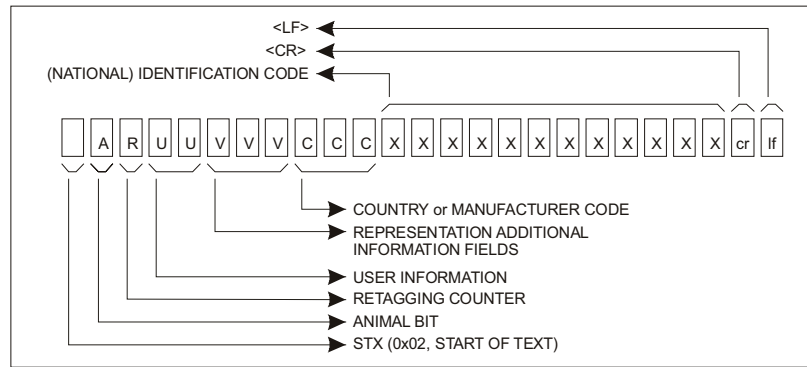
**Figure 4 — Transmission of information by a communication link
without time stamp option**

Optionally, transmission of a time stamp in the mandatory format, yymmddhhmmss, directly after the animal identification information (see Figure 5) is permitted.
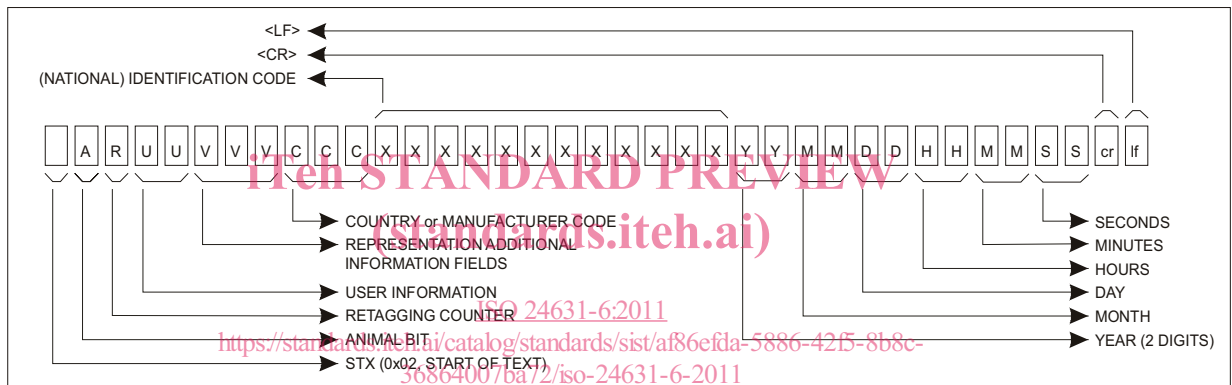
**Figure 5 — Transmission of information by a communication link
including mandatory format of the time stamp option**

The format of online and offline communication is the same.

Users may optionally switch a transceiver to a mode where the information is transmitted in formats different from those described in this part of ISO 24631.