

BS ISO 24631-6:2011



BSI Standards Publication

Radiofrequency identification of animals

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

National foreword

This British Standard is the UK implementation of ISO 24631-6:2011.

The UK participation in its preparation was entrusted to Technical Committee AGE/6/1, Radio Frequency ID for Animals.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© BSI 2011

ISBN 978 0 580 65746 7

ICS 65.040.99

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2011.

Amendments issued since publication

Date	Text affected
<hr/>	

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)





COPYRIGHT PROTECTED DOCUMENT

© ISO 2011

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11 Fax + 41 22 749
09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

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

[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 24631-1]

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

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.

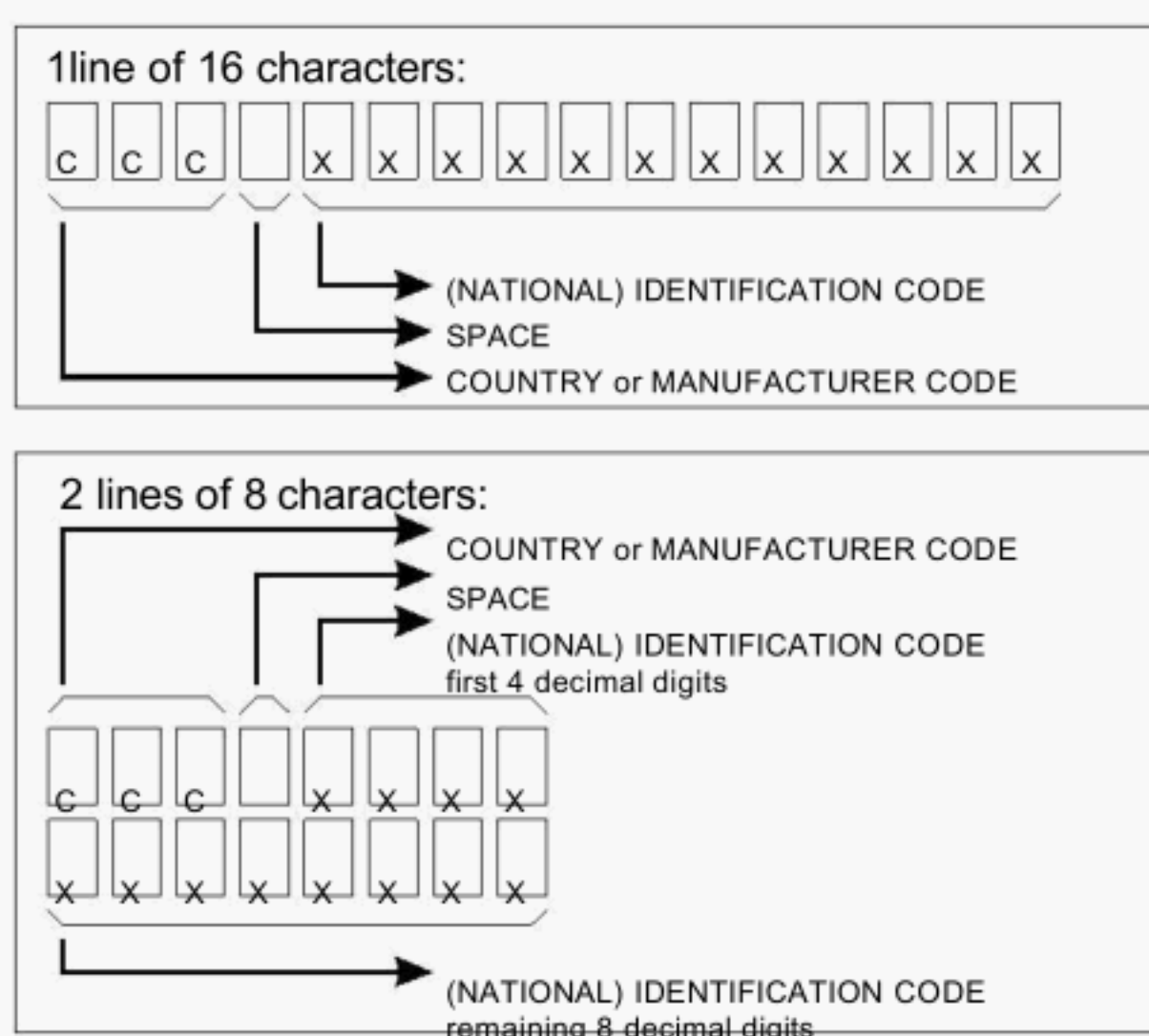


Figure 1 — Representation of identification code on transceiver display

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.

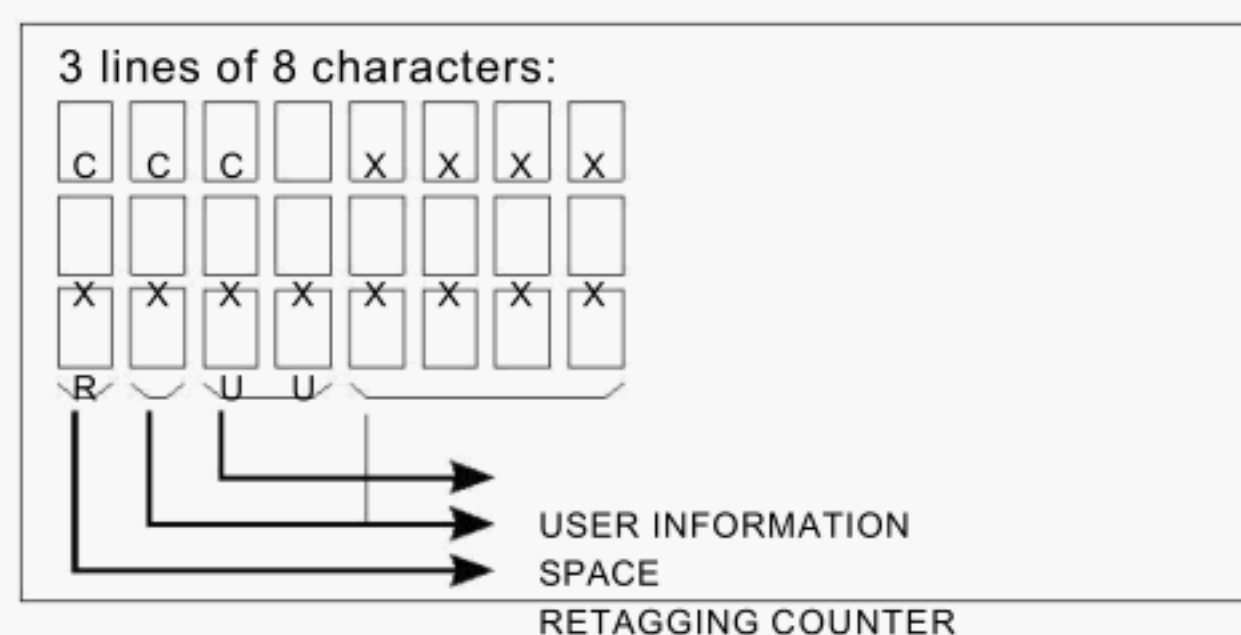


Figure 2 — Representation of retagging counter and user information on transceiver display

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.

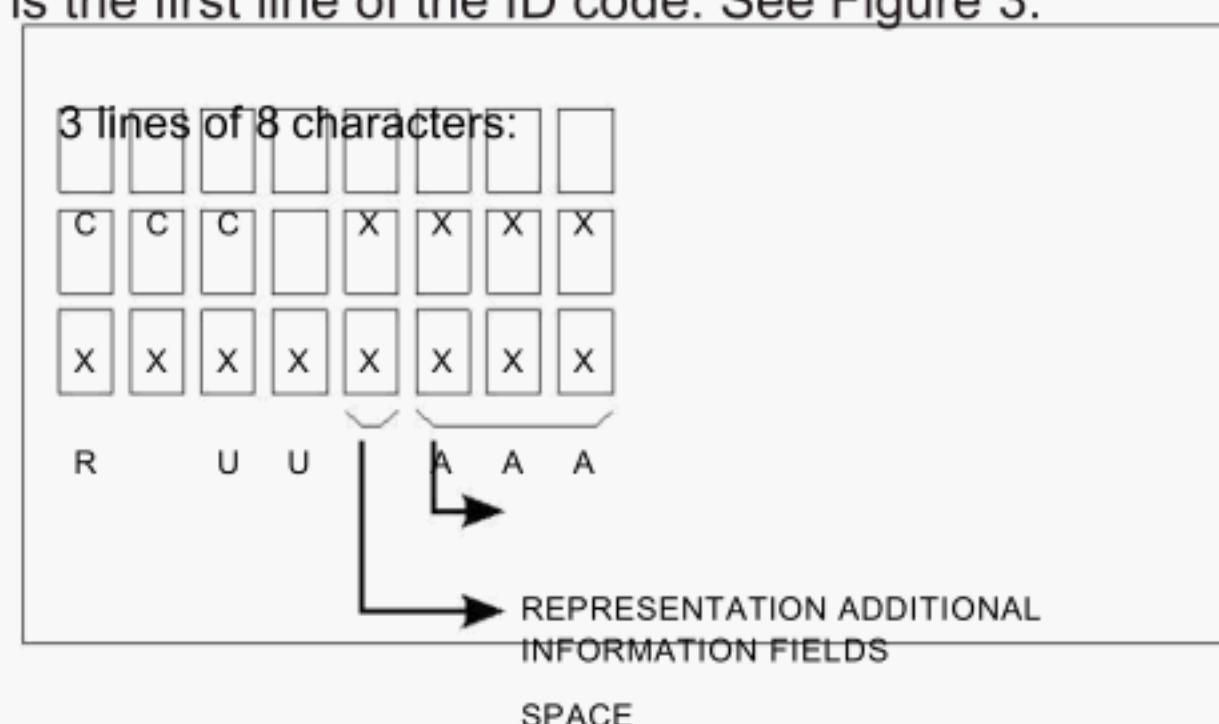


Figure 3 — Representation of additional information fields on transceiver display

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).

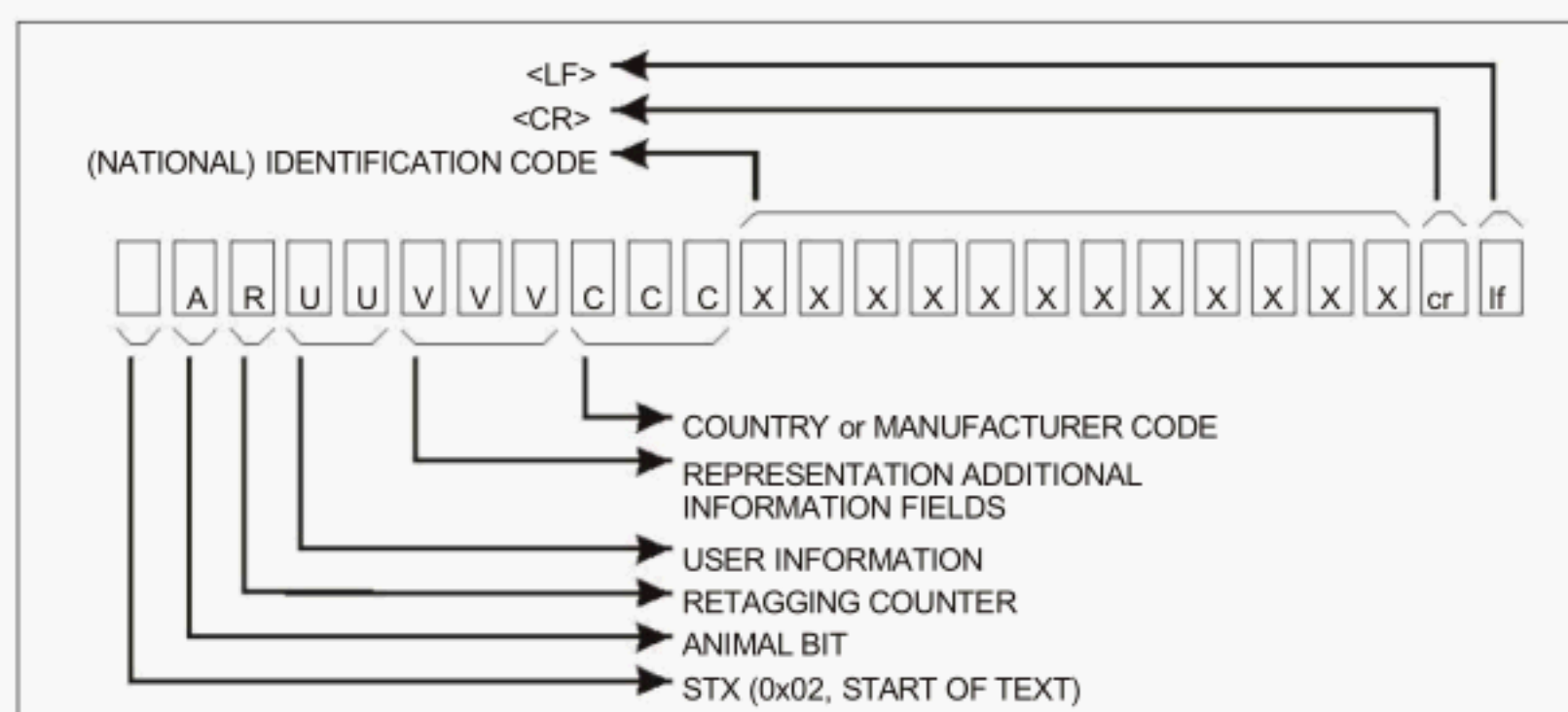


Figure 4 — Transmission of information by a communication link without time stamp option

Optionally, transmission of a time stamp in the mandatory format, yymmddhhmmss, directly after the animal identification information (see Figure 5) is permitted.

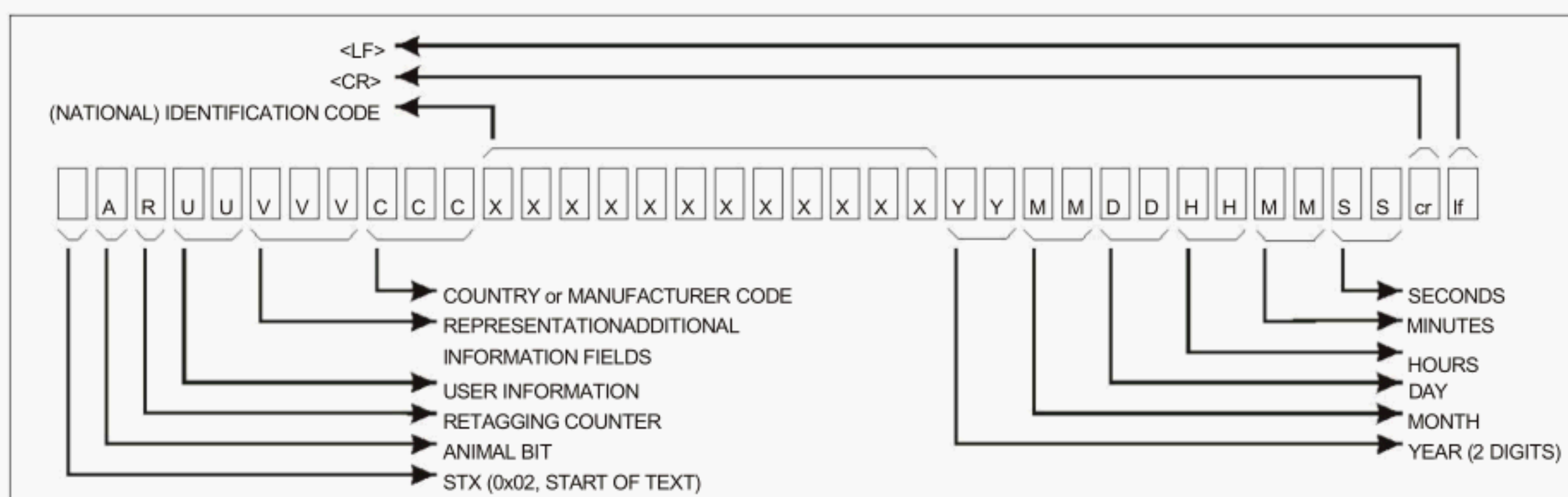


Figure 5 — Transmission of information by a communication link including mandatory format of the time stamp option

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.

Bibliography

- [1] International agreement of recording practices. ICAR Guidelines approved by the General Assembly held in Kuopio, Finland, on 9 June 2006
- [2] ERC recommendation 70-03 (Tromsø 1997 and subsequent amendments) relating to the use of short range devices (SRD), recommendation adopted by the Frequency Management, Regulatory Affairs and Spectrum Engineering Working Groups, version of 30 May 2008

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards-based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With British Standards Online (BSOL) you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a BSI Subscribing Member.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a Multi-User Network Licence (MUNL) you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

All the data, software and documentation set out in all British Standards and other BSI publications are the property of and copyrighted by BSI, or some person

or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use. Except as permitted under the Copyright, Designs

and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI. Details and advice can be obtained from the Copyright & Licensing Department.

Useful Contacts:

Customer Services

Tel: +44 845 086 9001

Email (orders): orders@bsigroup.com

Email (enquiries): cservices@bsigroup.com

Subscriptions

Tel: +44 845 086 9001

Email: subscriptions@bsigroup.com

Knowledge Centre

Tel: +44 20 8996 7004

Email: knowledgecentre@bsigroup.com

Copyright & Licensing

Tel: +44 20 8996 7070

Email: copyright@bsigroup.com

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK



...making excellence a habit.™