2023-02-0 Style Definition Formatted: Left: 1.9 cm, Right: 1.9 cm, Top: 1.4 cm, ISO/DISPRF 6881:2023(E Bottom: 1 cm, Gutter: 0 cm, Section start: New page, Header distance from edge: 1.27 cm, Footer distance ISO-<u>/</u>TC 23/SC 19/WC from edge: 1.27 cm Formatted: Font: 14 pt, English (United Kingdom) Secretariat: DIN Formatted: zzCover large Date: 2023-10-25 Formatted **Formatted** Formatted: English (United Kingdom) Formatted: Space After: 0 pt Radio-frequency identification of animals—— Code structure ultra-Formatted

high frequency transponders

<u>Identification par radiofréquence des animaux — Structure du code des transpondeurs à ultra haute</u> <u>fréquence</u>

(https://standards.iteh.ai)

FDIS stage

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Contents Foreword Introduction. 1 Scope.. Normative references..... Terms and definitions.. 4 Symbols (and abbreviated terms)..... 5 General requirements 5.1 General... 5.2 Structure of Reserved Memory Bank (MB 00).... 5.3 Structure of TID Memory Bank (MB 10) .. 5.4 Structure of UII Memory Bank (MB 01)..... 5.4.1 General..... 5.4.2 Structure of the StoredPC..... 5.4.3 Structure of the UII..... Backward compatibility 6.1 General 6.2 LF transponders (for reference)..... 6.3 UHF transponders..... Annex A (informative) CRC 8 source code...... Bibliography 1. Scope v Terms and definitions v Symbols (and abbreviated terms) 4. General requirements x 4.1 General x 4.2 Structure of Reserved Memory Bank (MB 00) xi 4.3 Structure of TID Memory Bank (MB 10) xi 4.4 Structure of UII Memory Bank (MB 01) xi 4.4.1 General 4.4.2 Structure of the StoredPC xii 4.4.3 Structure of the UII xiii 5. Backward compatibility xv 5.1 General xv 5.2 LF transponders (for reference) xvi 5.3 UHF transponders xvi

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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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 23, Tractors and machinery for agriculture and forestry, Subcommittee SC 19, Agricultural electronics.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document does not use EPC coding but ISO coding. To define an ISO 18000—63 transponder as assigned for animal identification only, an Application Family Identifier (AFI) shall be implemented according to ISO 15961. The AFI is used in an ISO 18000-63 transponder to select in the bulk reading process only those transponders programmed for the dedicated application.

This document does not specify the characteristics of the transmission protocols between transponder and transceiver. These characteristics are the subject of ISO 18000-63.

Transponders are in conformance with this part of the International Standarddocument provided they meet clauses 6the requirements given in Clauses 5 and 7 of this document.6.

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Radio-frequency identification of animals— Code structure ultra	1-4	Formatted	
high frequency transponders	_	Formatted	
g			
1.1 Scope	-	Formatted	
This document defines the rules for encoding the animal identification code in a specific memory bar	l ık		
known as MB 01 in the memory of an ISO 18000-63 transponder (UHF RFID technology).		Formatted	
		Formatted	
2.2 Normative references		Formatted	
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The following documents are referred to in the text in such a way that some or all of their conte		Formatted	
constitutes requirements of this document. For dated references, only the edition cited applies. Fundated references, the latest edition of the referenced document (including any amendments) applie	,	Formatted	
ISO 11784:1996, Radio frequency identification of animals — Code structure		Formatted	
poop 27. o 1.25.50 p. aano 1.0 questo y 1.00 notation of animals — 0.000 out uotate		Formatted	
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3.3 Terms and definitions	•	Formatted	
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For the purposes of this document, the following terms and definitions apply.	. //	Formatted	
ISO and IEC maintain terminology databases for use in standardization at the following addresses:	-//	Formatted	
— ISO Online browsing platform: available at https://www.iso.org/obp		Formatted	
—IEC Electropedia: available at https://www.electropedia.org/	- / /	Formatted	
	Τ //	Formatted	
3.1 WH-unique item identifier	ı ///	Formatted	
<u>UII</u> ISO/PRF 68 <u>81</u>		Formatted	
96-bit pattern which defines a unique number that contains the <i>DSFID</i> (3.2),(3.2), the animidentification header, the animal identification code and the 8-bit CRC	al / ///	Formatted 1b/iso-prf-6881	
		Formatted	
Note_1-to entry:-If the JSO 18000-63 transponder has more than 96 bits of UII memory, the additional bits considered UII Trailer bits and shall be set to 0 as default value.	re•/ ///	Formatted	
		Formatted	
Note-2-to entry: See <i>DSFID</i> $\frac{(3.2)}{(3.2)}$, animal identification header $\frac{(3.3)}{(3.3)}$, animal identification code $\frac{(3.4)}{(3.15)}$ and JSO 18000 $\frac{(3.4)}{(3.15)}$	<u>1</u> 1.///	Formatted	
p-nt che (3.13)(3.13) anu 130 10000-03 transponder (3.30):0300/0300/04 (3.30).		Formatted	
3.2	. /	Formatted	
DSFID data storage format identifier DSFID		Formatted	
$8 -bit number defined by ISO/IEC_15962 that indicates the application and how the data is structured in the control of the$	to ///	Formatted	
the UII memory of the ISO 18000-63 transponder, i.e. the access method and data format-		Formatted	
Note_1-to-entry:-See <i>JIII</i> (3.1)(3.1) and JSO 18000–63 transponder (3.30),-63transponder (3.30).	•	Formatted	
2.2		Formatted	
3.3 animal identification header		Formatted	
16-bit code reserved for future use		Formatted	
Note_1-to_entry:_The animal identification header shall be set to 0 as default.	14	Formatted	
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		Formatted	
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	. //		

3.4

animal identification code

64-bit pattern which unequivocally identifies an animal comprising the country code or manufacturer's code, the national identification code and the control bits

Note-1-to entry:-The animal identification code is defined by the ISO-11784.

Note-2-to entry:-See country code (3.5),(3.5), manufacturer's code (3.6),(3.6), national identification code (3.7)(3.7) and control bits (3.8),(3.8).

3.5

country code

10-bit pattern to define the country where the transponder was issued or used, according to ISO- $_{2}$ 1166 $_{1}$ 5160 $_{2}$ 5170 $_{3}$ 5170 $_{4}$ 5180 $_{5}$ 5180 $_$

3.6

manufacturer's code

10-bit pattern identifying the manufacturer of the transponder

Note 1-to entry:-_The manufacturer's code is used as alternative to the country code, when no competent authority is available to issue the country code authorization.

Note—1—2 to entry:—ISO has appointed ICAR (the International Committee for Animal Recording (ICAR) as the registration authority (RA) competent to register and manage manufacturer codes used in the radio frequency identification (RFID) of animals in accordance with ISO 11784 and ISO 11785.

3.7

national identification code

38-bit code field with a unique number within a country, where the code structure and sequence is defined by the <u>Country</u> on charge

3.8

control bits

16-bit code that contains the animal application bit, the retagging counter, the user information field, the reserved field, the RUDI bit and the data block bit-

Note-1-to-entry:-See animal application bit $\frac{(3.9)}{(3.11)}$, retagging counter $\frac{(3.10)}{(3.11)}$, user information field $\frac{(3.11)}{(3.11)}$, reserved field $\frac{(3.12)}{(3.12)}$, RUDI-bit $\frac{(3.13)}{(3.13)}$ and data block bit $\frac{(3.14)}{(3.14)}$.

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3.9

animal application bit

bit which signals whether the transponder is used for animal identification or not

Note 1-to-entry:-In all animal applications this bit shall be 1.

3.10

retagging counter

three-bit counter for counting the number of retagging

3.11

user information field

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

Note-1-to-entry:-See country code (3.5).(3.5).

3.12

reserved field

6-bit code reserved for future use

3.13

RUDI-bit

bit indicating the existence of data in the User Memory (MB11}-,

Note_1_to entry:-The RUDI-bit shall have the same value of the UMI bit. The RUDI-bit and UMI bit shall be encode with the value 0 if the User Memory is empty or not available.

Note-2-to entry:-See country code (3.5)(3.5) and UMI (3.19).(3.19).

3.14

data block bit

bit indicating the existence of data in the additional UII memory

3.15

8-bit CRCs://standards.iteh.ai/catalog/standards/sist/41f90cb3-c299-

8-bit Cyclic Redundancy Check computed over the contents of the UII

Note 1-to-entry:-The 8-bit CRC protects the information against bit flipping.

3.16

MB-memory bank

<u>MB</u>

designated name of a segmented memory structure

Note-1-to entry:-For this document, the memory banks are: 00 (Reserved), 01 (UII memory), 10 (TID), and 1 (User memory) using binary notation.

Note-2-to entry:-See ISO 18000-63 transponder (3.30).-63transponder (3.30).

3.17

storedCRC

16-bit CRC automatically generated, computed over the contents of the StoredPC and the UII

Note 1-to entry:-The storedCRC does not protect against bit flipping (unintentional change of state of a bit stored in memory).

Note $\frac{1}{2}$ to entry:-See StoredPC $\frac{(3.18)(3.18)}{(3.18)}$ and UII $\frac{(3.1)\cdot(3.1)}{(3.1)\cdot(3.1)}$

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3.18

storedPC

protocol-control information stored in the UII Memory Bank (MB 01) that contains the Length Indicator, the UMI, the XI, the Toggle Bit and the AFI

Note-1-to-entry:-See StoredPC (3.18), (3.18), UMI (3.19), (3.19), XI (3.20), (3.20), toggle bit (3.21) (3.21) and AFI (3.22), (3.22).

3 19

UMI-user memory indicator

<u>UMI</u>

Boolean flag in the UII Memory Bank (MB 01) indicating whether the User Memory Bank (MB 11) is present and contains data

Note-1-to entry:-The UMI bit shall have the same value of the RUDI-bit.

Note-2-to entry:-See RUDI-bit (3.13).(3.13).

3.20

XI-extended protocol control indicator

ΧI

bit in the UII Memory Bank (MB 01) indicating whether XPC (see paragraph 5 Symbols) words are present

3.21

toggle bit

Boolean flag in the UII Memory Bank (MB 01) indicating whether the presence of an Application Family Identifier (AFI).

Note_1_to entry:_The Toggle bit shall be encoded with the value 1 to indicate the presence of the AFI.

Note-2-to entry:-See AFI (3.22).(3.22).

3.22

AFL application family identifier at/catalog/standards/sist/41f90cb3-c299-4cad-8ffc-1dc99a61c91b/iso-prf-6881

AFI

code programmed in the UII Memory Bank (MB 01) used to select a class of RFID tags relevant to an application, or aspect of an application, and to ignore further communications with other classes of RFID tags with different identifiers

Note-1-to entry:-This International Standarddocument does not use GS1 EPC coding but ISO coding.

Note_2_to entry:-Application Family Identifier is defined in ISO/IEC 15961-3.

3.23

ISO coding

application whose usage denotes an acceptance of ISO standards and policies and where in MB01 an Application Family Identifier as defined in ISO/IEC 15961-3 is encoded

3.24

kill password

32-bit password in the Reserved Memory Bank (MB 00) that shall beis presented to the tag in order to complete the mandatory "Kill" command. The "Kill" command is used to permanently silence a tag

Note_1-to entry:-The "Kill" command is used to permanently silence a tag.

Note 2 to entry: For this document, the Kill Command shall not be used.

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