ICAR
THE GLOBAL STANDARD
FOR LIVESTOCK DATA

Section 10 - Guidelines for Animal Identification Device Testing & Certification

Section 10 – Identification Devices
Version February, 2018

Network. Guidelines. Certification.

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Change Summary

Date of Change	Nature of Change
July 2017	Rewritten using new structure for ICAR Guidelines. This document is the Overview. See also new and separate documents for Procedures and Appendices for Section 10.
July 2017	Reformatted using new template.
July 2017	Table of contents added.
August 2017	Reviewed and commented by the ID Sub-Committee and revised slightly.
September 2017	Revised names of the Procedures.
September 2017	Template defined and Style applied. Table and list bullets standardised.
October 2017	Edit to Title to conform to ICAR standard. Table and Figure captions added. List of Tables and Figures added. Update Version to October. Cross-references corrected.
February 2018	On Saturday 10th February, changes approved by the ICAR General Assembly in Auckland, New Zealand.

1   Introduction

This Section provides a general introduction to the principles and procedures developed for testing and certification of animal identification devices by ICAR.

On June 22, 2007 ISO appointed ICAR 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.

ICAR has administrative procedures in place for testing the conformance of RFID devices in respect to ISO 11784 and ISO 11785. Only those results coming from accredited test centres are recognized. In addition, ICAR offers evaluations on various quality and performance features of those devices subjected to the ICAR conformance test and these evaluations are also available for conventional plastic ear tags.

2   Definitions and Terminology

Table 1 contains a list of important definitions for terms and abbreviations used in these guidelines.
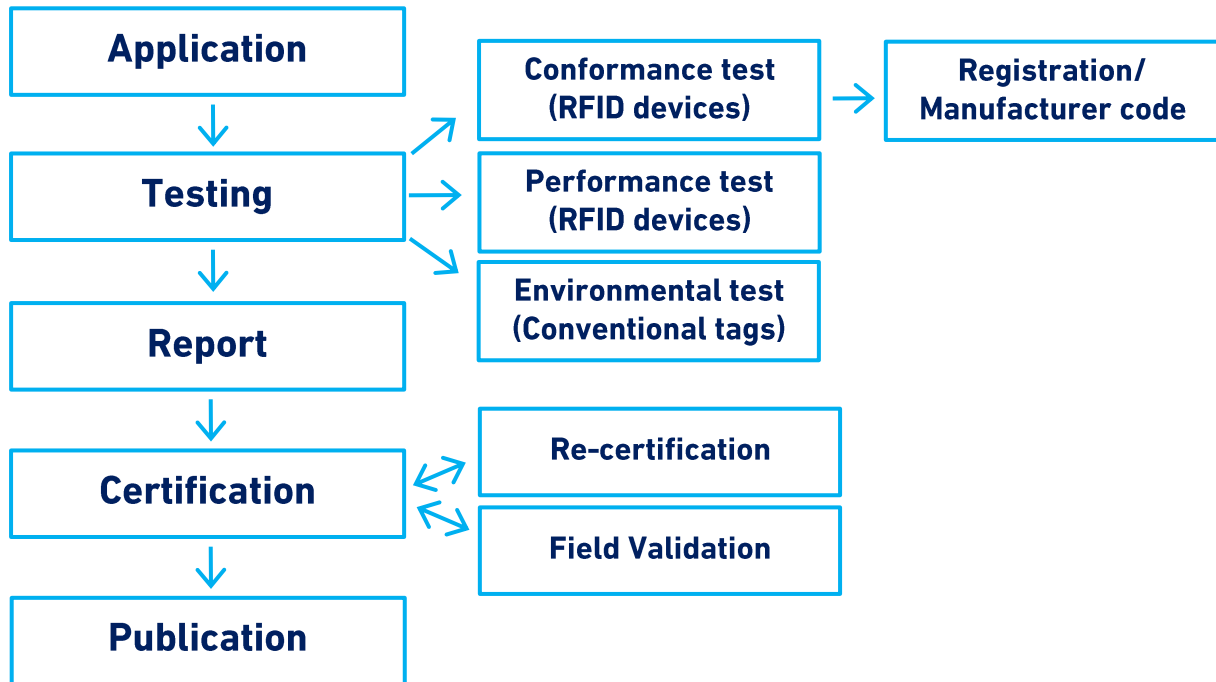
Table 1. Definitions of terms used in these guidelines.

Term	Definition
RFID devices	Devices (ear tags, leg tags, boluses, injectable transponders) used for animal identification that use radio-frequency identification technology.
Conventional ear tags	Visual ear tags used for animal identification that do not use RFID technology. They can be machine readable (barcoded) or not.
Registration Authority (RA)	Authority appointed by ISO, competent to register manufacturer codes used in the radiofrequency identification of animals in accordance with ISO standards 11784 and 11785.
Test centre	ICAR-accredited laboratories that carry out tests on animal identification devices.
Registration	The granting of shared/unshared manufacturer codes as defined in ISO 11784.
Manufacturer code	A 3-digit number granted by ICAR to a manufacturer.
Certification	ICAR service additional to the registration of devices, with 5-year validity.
Re-certification	ICAR service for devices whose certification has expired after 5 years.
Competent Authority (CA)	Ministry or organisation responsible for animal identification schemes.
Field Validation	ICAR quality verification service for certified devices available on the market.

3 Scope

Figure 1 gives a pictorial summary of the main elements of this guideline.

In summary, section 10 of the ICAR Guidelines covers the testing and certification procedures from the submission of the application by a manufacturer to the publication of the certification on the ICAR website.

Figure 1. Scope of Section 10: Animal identification and identification devices

4 Application

The procedure for any type of test and certification starts with an application submitted by the manufacturer to the ICAR Secretariat. The Secretariat reviews the application, selects the test centre[1], issues an umbrella contract (only the first time that a test is requested) and sends the invoice that needs to be paid before the test starts. Financial transactions between manufacturers, test centres and ICAR are coordinated by Service-ICAR. In order for the test to begin, the manufacturer sends all the necessary devices and accessories to the test centre carrying out the tests. The devices and accessories remain the property of ICAR.

5 Testing

Testing of identification devices can be subdivided into four main categories as reported in Table 2.

5.1 RFID Conformance test (ISO 24631-1)

Conformance testing is required to demonstrate electronic transponders meet the specifications and standards in ISO 11784 and ISO 11785. The submission of identification

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[1] Manufacturers also have the right to choose their preferred test centre

devices to conformance testing is obligatory before they can be used in the official identification of animals.

Conformance tests are coordinated by Service-ICAR. Acting as the RA on behalf of ISO, ICAR issues a Certificate of Conformance for RFID devices conforming with ISO 11784 and ISO 11785.

Details of the RFID Conformance test are described in Procedure 1, Section 10 'Conformance of RFID Transponders with ISO 11784 and ISO 11785' available here.

5.2 RFID Performance test (ISO 24631-3)

Performance testing is an evaluation of the following characteristics of an RFID device: modulation amplitude, bit length stability, minimum activation field strength resonance frequency and amplitude voltage response (Vss). These RFID performance test results are not subject to pass or fail criteria but provide useful additional information on device behaviour when communicating with a reader. Acting as the RA on behalf of ISO, ICAR evaluates RFID devices through the RFID performance test and provides the report of the performance test to the submitting manufacturer accordingly.

5.3 Device Composition and Environmental Performance test (ICAR)

ICAR offers a device composition and environmental performance test for both conventional and RFID external devices. The objective of these tests is to give extensive information on device durability and performance in diverse animal management conditions. Procedures will vary depending on the device type. ICAR issues an evaluation report and ICAR certificate for devices in accordance with the specifications of the respective ICAR.

Details of the device composition and environmental performance test are described in Procedure 4, Section 10 'Composition and Environmental Testing and Certification of Conventional Plastic Ear Tags' available here and Procedure 5, Section 10 'Composition and Environmental Testing and Certification of External RFID Devices' available here.

5.4 Field Validation of Animal Identification Devices

Field Validation of Animal Identification Devices is a voluntary service for National Competent Authorities or other service users, other than manufacturers or their agents. The Field Validation service is a quality verification service to ensure that devices available in the relevant market(s) remain compliant with the appropriate ISO and ICAR test protocols. Field Validation does not lead to certification of the devices.

Details of the Field Validation of Animal Identification Devices test are described in Procedure 6, Section 10 'Field Validation of Animal Identification Devices' available here.

5.5 Summary of Tests

Table 2 summarizes the categories of tests.

Table 2. Categories for the testing of identification devices.

Test category	Test description	Link to test procedure
Conformance and Performance ISO 24631-1	Conformance/performance test of transponder (incl. granting of manufacturer code) or transceiver	[Procedure 1, Section 10](#) 'Conformance of Transponders with ISO standards'
		[Procedure 2, Section 10](#) 'Granting of Manufacturer Code'
		[Procedure 3, Section 10](#) 'Conformance of Transceivers with ISO standards'
Composition and environmental performance – Conventional ear tags	Extended laboratory test	[Procedure 4, Section 10](#) 'Testing of Conventional Plastic Ear Tags'
Composition and environmental performance – External RFID devices	Extended laboratory test	[Procedure 5, Section 10](#) 'Testing of External RFID Devices'
Field Validation	Partial test for certified devices available on the market.	[Procedure 6, Section 10](#) 'Field Validation of Identification Devices'

5.6 Test Centres

Testing is conducted by ICAR accredited test centres. Each test is contracted by Service-ICAR to a specific test centre. The test centre is obliged to act according to the procedures laid down within the test protocols. In addition, all details associated with the testing phase, including the test results must be kept strictly confidential. Test centres are regularly monitored by the ICAR Animal Identification Sub-Committee and their names are available [here](#).

6 Manufacturer code

Following the first successful full conformance test, ICAR – as the RA for ISO for the standards 11784/11785 – allocates to the manufacturer a code to be used only for products registered by ICAR. There are two types of manufacturer codes:

a. Shared manufacturer code (900): can be granted to more than one manufacturer. A restricted set of identification codes is allocated to the registered product for exclusive use together with the shared manufacturer code.

b.   Unshared manufacturer code (901-998): can only be granted to one manufacturer following proof that during two consecutive years the company has sold a minimum of one million (ICAR certified) transponders per year.

Note: the manufacturer code concerns only the certification of RFID devices. As regards conventional ear tags, ICAR allocates unique certification codes to the products that pass the Device composition and environmental performance test.

7   Report

Test centres prepare a confidential report of the test results and submit the report to the ICAR Secretariat. The Secretariat checks the report and forwards it to the manufacturer, together with the ICAR certificate in case of successful test. The report is also shared for information with the Animal Identification Sub-Committee.

8   Certification

The tests that lead to an ICAR certificate are:

a.   RFID Conformance test (ISO 24631-1).

b.   Device Composition and Environmental Performance test (ICAR).

Certificates are issued by the ICAR Secretariat and signed by the ICAR Chief Executive. They are sent to the manufacturer by e-mail. In the case of certificates of conformance, the Chair of the ISO/TC23/SC19/WG3 is copied so that ISO is informed about registered devices under the RA Agreement.

For other tests not subject to pass or fail criteria (e.g. Performance test), an official ICAR letter acknowledging the completion of the test is sent to the manufacturer.

9   Publication

All ICAR-certified devices are published on the ICAR website:

a.   RFID devices web page (available here).

b.   Conventional ear tags web page (available here).

Devices whose certification has expired are removed from the webpage. A specific web page contains all the devices registered by ICAR in conformance with ISO standards 11784 and 11785. Devices listed in this webpage are never removed since the registration is valid for the lifetime of the device.

Table 3 summarizes the steps and responsibilities in the ICAR certification procedure.

Table 3. Steps, actions and responsibilities in the ICAR certification procedure.

Step	Action	Responsibility
1	Application for testing of a device	Manufacturer or dealer of identification device
2	Confirmation of admittance to participate and issuance of test contract	Service-ICAR
3	Testing and report compilation	ICAR test centres
4	Sharing of test results with the applicant	Service-ICAR
5	ICAR certification	ICAR
6	Publication on the website	ICAR

10   Re-certification

After 5 years from the issuance of an ICAR certificate, the test must be repeated in order for the certification to be renewed for another 5 years. The device maintains its original product/certification code. The test protocols applied for the re-certification are:

   a.   The limited test protocol for the RFID devices

   b.   The preliminary assessment protocol for the conventional devices

The application process is the same as for any other tests. Once re-certified, the device remains on the ICAR website for another 5 years and the latest date of certification is indicated.

11   Field validation

At any given moment, Competent Authorities or other service users can apply for a Field Validation test. Devices are tested against the current ICAR standards and the results are compared with original or earlier results for the same devices. The test protocols used by the laboratories are:

   a.   The limited test protocol for the RFID devices.

   b.   The preliminary assessment protocol for the conventional devices.

The applicant may also request or specify additional test protocols, provided these are defined in other existing ISO or ICAR higher level test protocols.

It is required that the devices to be tested are collected from the local market stock by the applicant and not by the manufacturer.

12   Conditions for the use of ICAR certificates

   a.   The conditions for the use of ICAR certificates are described in the respective procedures.

   b.   If a device is certified by ICAR, the manufacturer may publish the certification of its device.

   c.   ICAR certification does not guarantee the device is suitable for all environments.

Note: A manufacturer must not use the ICAR logo for any purpose.

13   Appendices

Appendix A1. Application for RFID transponder Conformance test (ISO 24631-1) (link)

Appendix A2. Application for a manufacturer code allocation (link)

Appendix A3. Code of conduct (link)

Appendix A4. Application for RFID transponder Performance test (ISO 24631-3) (link)

Appendix A5. Application for RFID transceiver Conformance test (ISO 24631-2) (link)

Appendix A6. Application for RFID transceiver Performance test (ISO 24631-4) (link)

Appendix B1. Application for Device Composition and Environmental Performance test for conventional ear tags (link)

Appendix B2. Application for Device Change Notification (DCN) for conventional ear tags modified during the 5-year certification (link)

Appendix B3. Numbers for Reference Printing (link).

Appendix B4. Preliminary Test for Conventional Plastic Ear Tags (link).

Appendix B5. Laboratory Test for Conventional Plastic Ear Tags (link).

Appendix C1. Application for Device Composition and Environmental Performance test for external RFID devices (link)

Appendix C2. Application for Device Change Notification (DCN) for external RFID devices modified during the 5-year certification (link)

Appendix C3. Preliminary Test for External RFID Devices (link).

Appendix C4. Laboratory Test for External RFID Devices (link).

Appendix D1. Application for Field Validation test of animal identification device (link)