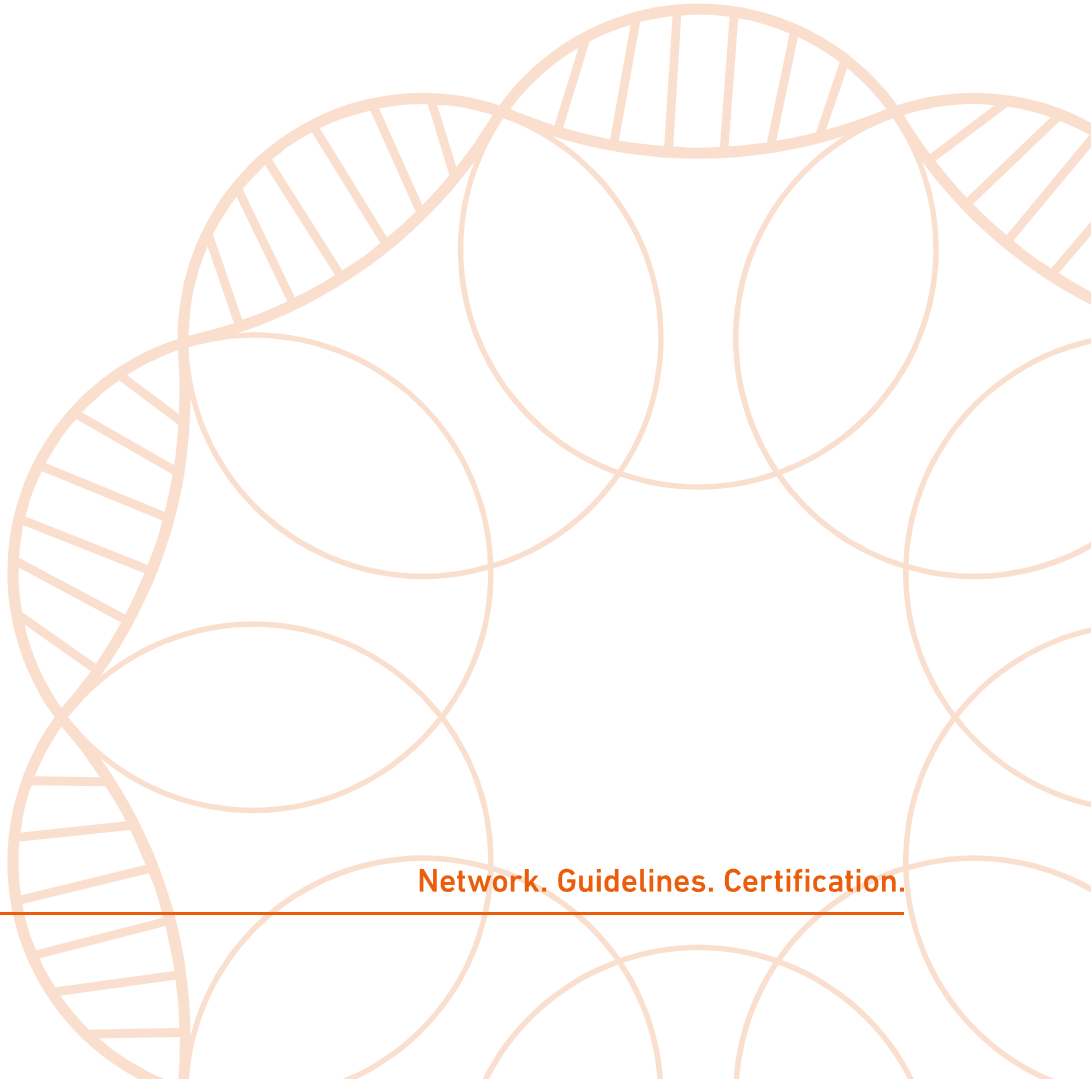
THE GLOBAL STANDARD
FOR LIVESTOCK DATA

Procedure 5 of Section 10 of ICAR Guidelines - Testing of External RFID Devices

Testing of External RFID Devices

Version February, 2018



Network. Guidelines. Certification.

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Change Summary

Date of Change	Nature of Change
August 2017	Changed Section title to 'Testing of External RFID Devices'.
August 2017	Changed certification code from "C" to "A" (in 4.1).
August 2017	Changed the sequential numerical code range for the Preliminary Assessment from 001-120 to 001-130 (in 4.5)
August 2017	Merged two application forms for Device Change Notification into one.
August 2017	Added reference to the Device Change Notification – DCN (section 5.1)
October 2017	Updated version to October. Corrected typos and cross references.
February 2018	On Saturday 10th February, changes approved by the ICAR General Assembly in Auckland, New Zealand.

1 Introduction

This section will guide the manufacturer through the steps of initially obtaining and then retaining ICAR certification for an external permanent radio frequency identification (RFID) device.

The ICAR procedure for testing the performance and reliability of external permanent RFID devices considers, but is not limited to the following issues:

a. Ease of application and use.

b. Efficiency of animal recognition.

c. Durability and tamperproof quality.

d. Animal welfare and human health.

Only external RFID devices designed as permanent electronic identification devices are covered in this procedure 5 of Section 10 of the ICAR Guidelines.

The testing procedure is composed of three distinct phases:

a. Phase 1: Manufacturer's Application (section 5.1)

b. Phase 2: Preliminary Assessment (section 5.2)

c. Phase 3: Laboratory Test - Technical Evaluation (section 5.3)

These test procedures must be carried out by an ICAR approved test laboratory. The fees for these test procedures will be borne by the device manufacturer.

A tested and certified product can have its certificate withdrawn if the product fails to comply with the requirements described in this section. ICAR and/or national authorities may randomly take samples of certified tags from the market and subject them to appropriate testing to ensure certified ear tags continue to meet ICAR standards. The manufacturer will be required to meet the costs of these assessments should the product fail to meet ICAR standards.

The manufacturer must advise ICAR of any sub-standard performance of ICAR certified products not in accordance with their previous test results. The manufacturer must also inform ICAR of any change to the composition of a certified RFID device.

ICAR certification does not imply that the external RFID device is suitable for all environments or that it's read performance is satisfactory for all uses. Where RFID devices are intended for use in animal identification schemes, it is the manufacturer responsibility to comply with the requirements of the relevant jurisdiction.

Users of external RFID devices and / or potential users of external RFID devices are encouraged to access the list of certified RFID devices found on the ICAR web site here.

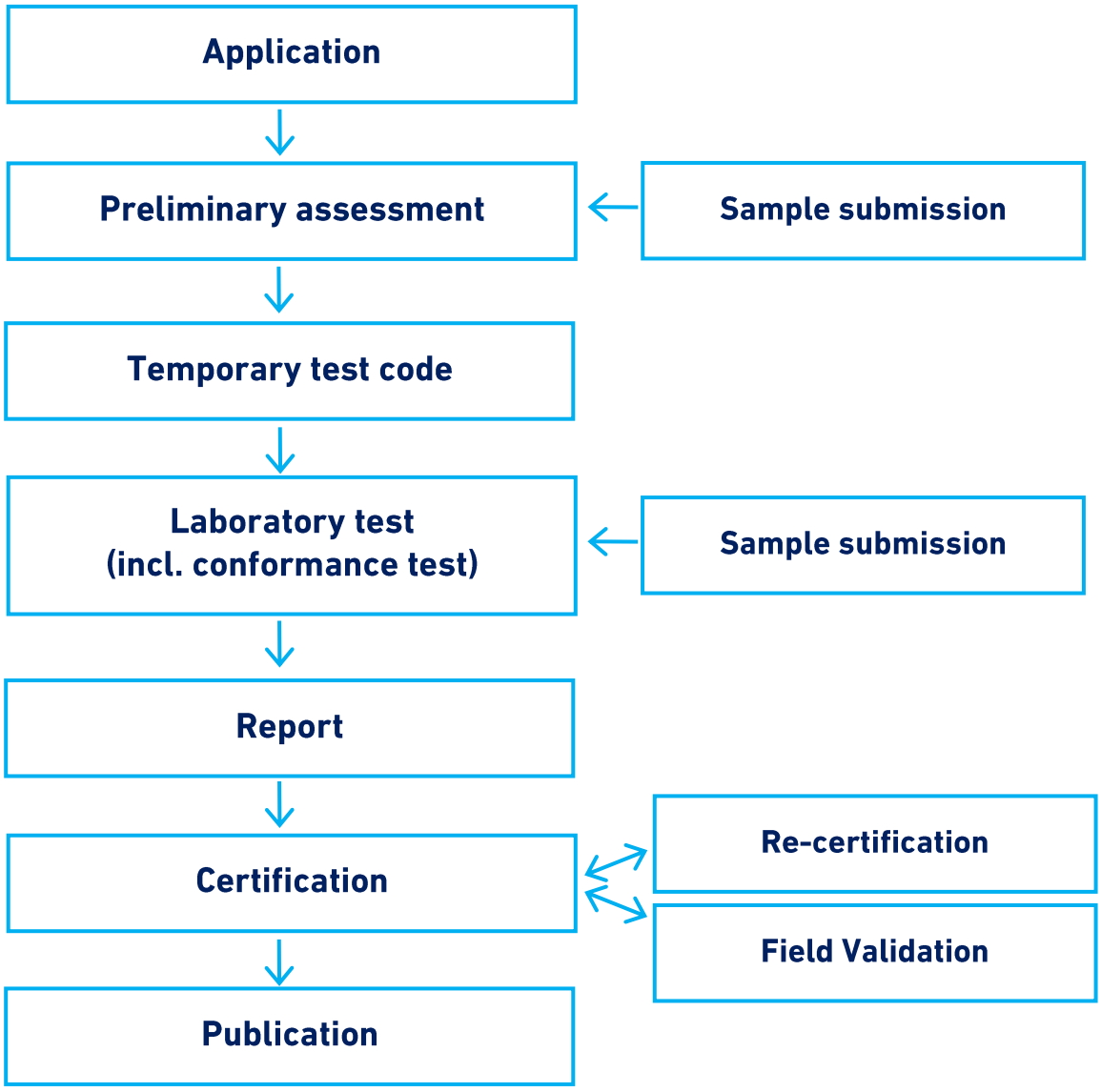
2 Scope

This section describes the evaluation procedures for measuring the composition and the performance of external RFID devices.

Successful completion of the procedures described in this section will result in the ICAR certification of the tested RFID device as a device recommended by ICAR for animal identification purposes. ICAR certified RFID devices are published on the ICAR web site (here).

Figure 1 gives a pictorial summary of the main elements of the testing and certification process of external RFID devices

Figure 1. Key steps for the testing and certification of external RFID devices



3 References

Table 1. References to relevant standards.

EN 1122	Plastics - Determination of cadmium - Wet decomposition method
ISO 4650	Rubber - Identification - Infrared spectrometric method
ISO 9924	Determination of composition of vulcanized elastomers
ISO 11357	Plastics - Differential scanning calorimetry (DSC)

ISO 527-1	Plastics - Determination of tensile properties part 1: General principles
ISO 37	Rubber, vulcanized or thermoplastic - Determination of tensile stress-strain properties
ISO 11664-4	Colorimetry - Part 4: CIE 1976 L*a*b* Colour space
ISO 7724	Paints and Varnishes – Colorimetry
EN ISO 4892-2	Plastics - Methods of exposure to laboratory light sources Part 2: Xenon-arc lamps
EN/IEC 60068-2-1	Environmental testing - Part 2-1: Tests - Test A: Cold
EN/IEC 60068-2-2	Environmental testing - Part 2-2: Tests - Test B: Dry heat
EN/IEC 60068-2-32	Environmental testing - Part 2-32: Tests - Test Ed: Free fall
ISO 4611	Plastics - Determination of the effects of exposure to damp heat, water spray and salt mist
ISO 11785	Radio frequency identification of animals - Technical concept
ISO 24631-1	Radio frequency identification of animals - Part 1: Evaluation of conformance of RFID transponders with ISO 11784 and ISO 11785
ISO 24631-3	Radio frequency identification of animals - Part 3: Evaluation of performance of RFID transponders conforming with ISO 11784 and ISO 11785

The latest version of the above references will always apply.

4 Definitions

4.1 Certification code

A certification code is an alpha-numeric consisting of “A”, followed by three numbers. The certification code is used to identify and register an RFID device that has successfully completed the testing procedure. This code may be embossed or printed on all ICAR certified RFID devices for official identification. The placement of the certification code should conform to the relevant jurisdictional requirements in whatever the locality the RFID device is sold.

4.2 Certified RFID device

A certified RFID device is an RFID device described in the Application Form that was submitted to the ICAR accredited test centre where it successfully passed the testing procedures and was thus certified by ICAR.

4.3 Manufacturer

The manufacturer is the company or person submitting the application for the testing of an RFID device and has accepted the conditions of ICAR for the certification of external RFID devices as outlined in section 7.

4.4 Reference colour

The colour of the external RFID device used in the laboratory tests must be yellow and the colour of the printing must be black. On the test samples, preferably on the rear part, the manufacturer must print a uniform solid block of 10mm x 10mm in the same colour as the colour of the printing on the device. Should the surface area of the device be too small to accommodate the printing of a 10mm x 10mm solid block, then a uniform solid block of 5mm x 20mm is acceptable. This printing may be on the female tag plate or on the male tag plate (sometimes known as the pin).

4.5 Reference ID codes

The transponders of the RFID devices submitted to the laboratory test must be programmed with the test code of 999 followed by zeroes and a sequential numerical code as per the following:

a. For the Phase 2 Preliminary Assessment, the sequential numerical code range will be: 001 - 130.

b. For the Phase 3 Laboratory Test, the sequential numerical code range will be: 201 - 400.

c. The reference ID code programmed into each transponder must be printed on the front part of each device. The font style and size must replicate precisely the font style and size the manufacturer commonly uses on that device within the market. This font size and style must be specified in the application form (Appendix C1 or Appendix C2).

4.6 RFID ear tag

An RFID ear tag is a radio frequency identification (RFID) external device able to be fixed to an animal's ear and deemed to be composed of three principal features:

a. The front part which is often, but not always, the "female" component of an ear tag combination. The front part is designated as such because it will be in the front of the animal's ear when the ear tag combination is applied correctly. It will often, but not always, contain the transponder.

b. The rear plate which is often, but not always, the "male" component of an ear tag combination. The rear plate is designated as such because it will be at the back of the animal's ear when the ear tag combination is applied correctly.

c. The locking mechanism which comprises of the locking gap in the female component of an ear tag and the pin of the male component of an ear tag combination.

4.7 RFID leg tag

An RFID leg tag is a radio frequency identification (RFID) external device able to be permanently fastened to an animal's lower leg.

4.8 Tested RFID device

A tested RFID device is a device described in the Application Form that was submitted to the ICAR approved test centre and subsequently tested.

5 ICAR Testing and Certification Procedure

5.1 Phase 1 Manufacturer's Application

To submit an external RFID device for ICAR testing within the scope of the tests described in this section, the manufacturer must complete an application and email it in PDF format to the Service-ICAR secretariat. The email address of the Service-ICAR secretariat is: manufacturers@icar.org

The application must consist of:

a. A letter of application

b. An Application Form (Appendix C1 or Appendix C2):

c. Appendix C1 form is the application form for the certification of a new device.

d. Appendix C2 is the application form for the certification of a device that has been modified during its certification period. (Please refer to section 7 for information on the Device Change Notification)

Copies of the required application form can be obtained from the ICAR web site (here) or from the ICAR secretariat.

By signing the application form, the manufacturer agrees to fulfil the conditions of ICAR testing, certification and payment obligations and also acknowledges the ongoing monitoring and assessments applicable for certified RFID devices.

5.2 Phase 2: Preliminary Assessment

5.2.1 Test procedures

Refer to detailed test procedure in Appendix C3. Preliminary Test for External RFID Devices (link).

5.2.2 Conclusion of the Preliminary assessment

The test centre will prepare a comprehensive report detailing the results of the submitted external RFID devices' performance in the Phase 2 Preliminary Assessment. This report will be submitted to ICAR who will then forward the test report to the manufacturer.

If the Phase 2 testing is successful, then the manufacturer will be asked to confirm their willingness to proceed to the Phase 3 Laboratory Test.

If a device has not performed satisfactorily, ICAR will provide the manufacturer with the test report and indicate the reasons for the device's failure.

5.3 Phase 3 Laboratory Test - Technical Evaluation

5.3.1 Assigning a Test Centre

Following the successful completion of the Preliminary Assessment and the decision of the manufacturer to proceed to the Phase 3 Laboratory Test, Service-ICAR will assign one of its approved test centres to carry out the Phase 3 Laboratory Tests. The manufacturer's preferred approved test centre may be taken into consideration.

5.3.2 Granting of a Test Code

A specific test code will be allocated by ICAR for the RFID device undergoing testing. The manufacturer will be advised of the test code and the manufacturer must print or engrave this code on each device produced for the Phase 3 Laboratory Test.

5.3.3 Manufacturer Requirements

At the commencement of Phase 3, the manufacturer must deliver the following items to the assigned test centre (in addition to the items listed in Appendix C4, Laboratory Test for External RFID Devices (link):

a. 200 external RFID devices programmed with the reference ID codes and the reference printing. One tag applicator or an equivalent device supplied for the application of devices to animals.

b. A statement specifying the nature of the polymer used for the RFID device, e.g.: thermoplastic elastomers, vulcanized elastomer etc.

5.3.4 Conduct laboratory test

Refer to detailed test procedure in Appendix C4. Laboratory Test for External RFID Devices (link).

6 Conclusion of the laboratory tests

The test centre will prepare a test report and will submit it to Service-ICAR which will then forward it to the ICAR Sub-Committee for Animal Identification for comment. All information collected during the laboratory tests will remain confidential and only disclosed to the manufacturer of that RFID device.

Upon the successful completion of the Phase 3 Laboratory Testing, ICAR will send the test report and an official letter to the manufacturer granting ICAR certification for that RFID device.

Each test report on a successfully tested RFID device will include a summary sheet with an evaluation of the appropriate suitability of the RFID device for various production systems and / or environmental conditions.

If the Phase 3 Laboratory Test results are unsatisfactory, ICAR will send the manufacturer a test report indicating the reasons for the failure.

7 ICAR conditions for certification of permanent external RFID devices

a. Upon successful completion of the ICAR test procedures described in this Procedure 5 of Section 10 of the ICAR Guidelines (Testing of External RFID Devices), ICAR will grant a device certificate valid for five years and a certification reference number.

b. The certification is valid only for the specific external RFID device type successfully tested and certified by ICAR.

c. A manufacturer cannot utilise the ICAR certification for an RFID device:

- Which is not manufactured by them; or
- Which does not comply in all respects to the ICAR certification (but not limited to):
  - Maintaining identical technology and the manufacturer of the certified tag;

- Maintaining an identical RFID device to the certified tag;

d. Once the ICAR certification has been granted, the manufacturer will be responsible to:

- Keep an accurate and detailed log of all changes to their product and this log must be available to ICAR upon request. This log must include details of in-house performance measurements and Quality Assurance testing showing the product has maintained or enhanced its quality, performance and material composition.
- Submit the product for a Device Change Notification (DCN) when changes are made to the composition and environmental performance characteristics of the device during its 5-year certification period. The modified device will have a new conventional product code, while the manufacturer will need to declare if the modified device will replace the existing one or if the two devices are going to co-exist. Every DCN application will be reviewed individually by ICAR and the designated laboratory, and ICAR shall decide if a partial test is applicable, or if the range of the modifications is such that a full test is required.

  Note: The request for DCN is not applicable to all types of changes to a device. Manufacturers are requested to contact the ICAR Secretariat (manufacturers@icar.org) for guidance before they apply for DCN.
- Submit the product for re-certification before the expiration of its current ICAR certification. The manufacturer must submit this product no earlier than 6 months before the expiration of the certificate and no later than 5 months before the expiration of the certificate.
- Understand that within the 5 year timeframe, ICAR may take sample products from the market and test its conformance against the conformance of the device the manufacturer originally submitted should ICAR suspect a breach of the signed ICAR Code of Conduct or a product change that has not been subjected to the tests outlined in procedure 5 of Section 10 of the ICAR Guidelines.

e. Should the manufacturer fail to meet any or all above certificate conditions ICAR may withdraw the certification.

f. In disputes regarding the conditions above or the use of a certificate, the decision of ICAR will be binding.

g. ICAR will distribute an advice notice regarding any manufacturer distributing RFID devices in conflict with the testing and certification procedures outlined in this procedure 5 of Section 10 of the ICAR Guidelines.