THE GLOBAL STANDARD
FOR LIVESTOCK DATA

Procedure 1 of Section 11 of ICAR Guidelines – Application for Testing of Measuring, Recording and Sampling Devices or Sensor Systems

Application for Testing of Measuring, Recording and Sampling Devices or Sensor Systems

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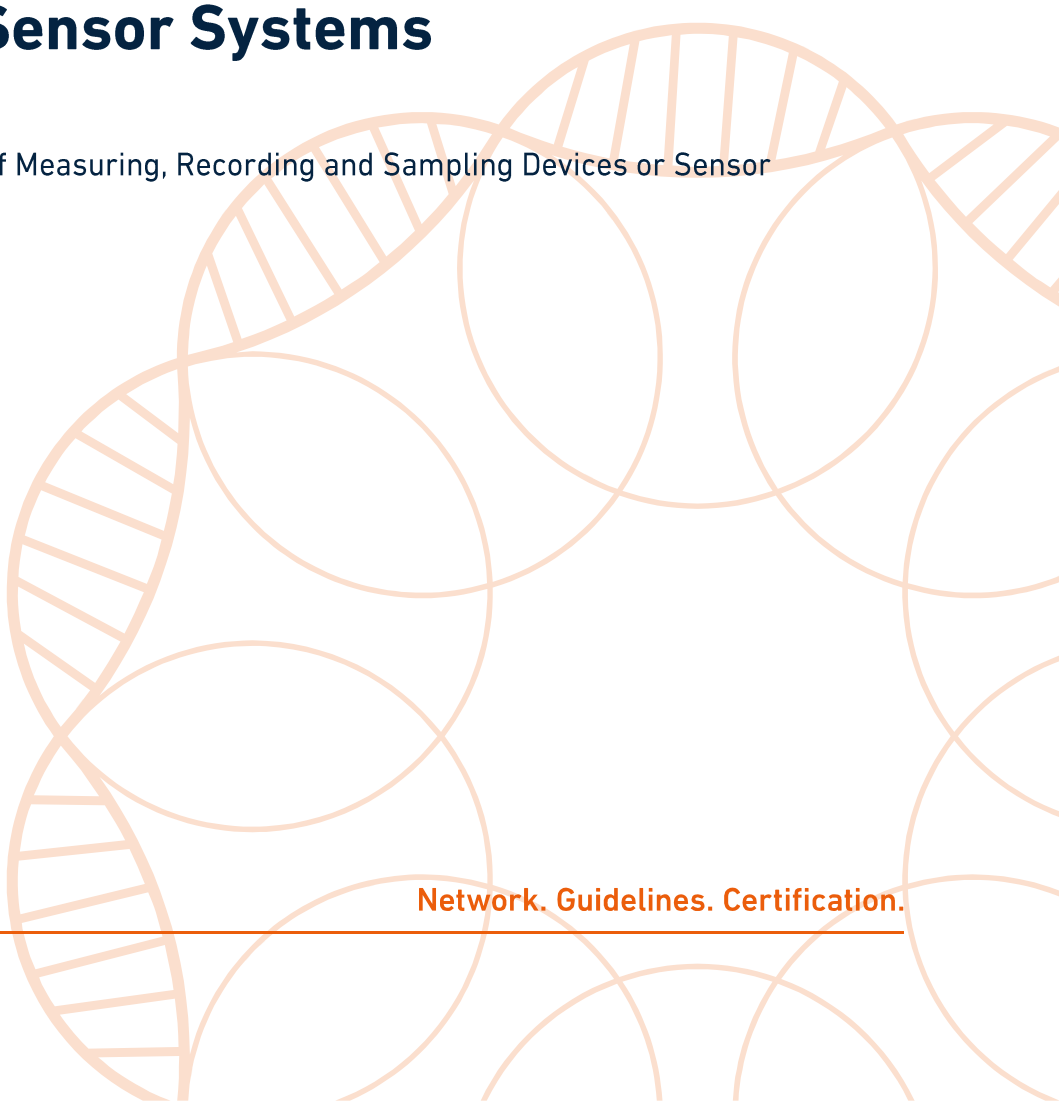

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Change Summary

Date of Change	Nature of Change
June 2020	Creation of separate Procedure.
July 2023	Approved by General Assembly and published.

1 Introduction

ICAR, working through Sub-Committee for Measuring, Recording, and Sampling Devices, conducts testing for:

a. Measuring, recording, and sampling devices.
b. Sensor systems including one or more sensor components.

The application process for ICAR testing is similar for individual devices and sensor systems; however, there are small differences in the process of testing. Specific procedures for certification of devices are outlined in section 2 of this procedure and for validation of sensor systems in section 3 of this procedure. Additional details on the steps for ICAR testing may be found on the ICAR website.

Certification is the final stage of the ICAR testing and certification process for measuring, recording and sampling devices, as illustrated in Figure 1. ICAR-certified devices meet the ICAR guidelines provided the manufacturer of the device meets the conditions for certification as outlined in Procedure 2.

Validation is the final stage of the ICAR testing and validation process for sensor systems as illustrated in Figure 2. ICAR-validated sensor systems have demonstrated through ICAR testing that the system delivers data as described in the test report and the manufacturer of the system meets the conditions for validation outlined in Procedure 2.

2 Measuring, recording and sampling devices

2.1 Overview

The devices used in ICAR Member Organisations for the purposes of official recording must be ICAR-certified. Any new recording or sampling device/system produced by a manufacturer or any other third party can be used for official milk recording only after it has been tested and certified by ICAR.

If certified devices are modified in hardware and/or software, influencing the measurement, sampling or testing routine, the manufacturer is responsible to report the modification(s) to the Chair of the Sub-Committee for Recording Devices. The Chair of the Sub-Committee will consult the test centre responsible for the original ICAR test. Based on the information gathered, the Chair of the Sub-Committee will present to the manufacturer the required plan of action. The manufacturer requests to review the device modification to ICAR using the normal test application process. The retest, which may include a desk review, modification test or a full test, will be contractually managed by ICAR as in the case of tests on new devices.

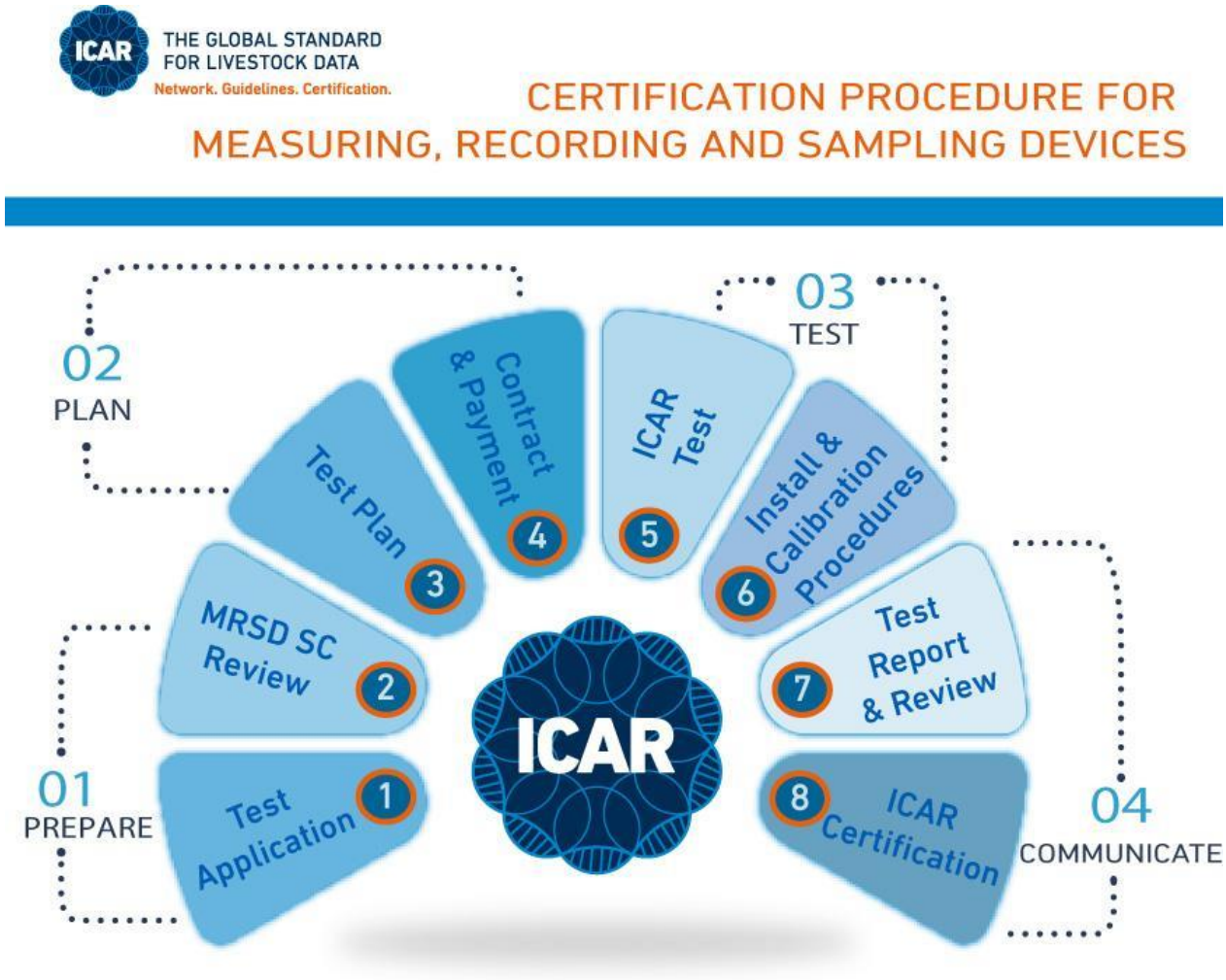
The following exceptions apply:

a. Cattle: Meters in use before 1 January 1992 that have been previously accepted by ICAR Member Organisations, may be used after this date.
b. Buffalo: Meters in use before 1 January 1997 that have been accepted by ICAR Member organisations, may be used after this date.
c. Sheep and goats: Meters in use before 1 January 1995 that have been accepted by ICAR Member organisations, may be used after this date.

2.2 Application

The first step in the ICAR testing and certification process for measuring, recording and sampling devices is an application by the manufacturer, as illustrated in Figure 1 below.

Figure 1. Certification procedure for measuring, recording and sampling devices.



The applicant should apply through the online application form found on the ICAR website.

A complete application includes:

- Recording and sampling device name, combination of devices and/or device software/firmware. The name of the meter, sampler, and controller should be included. In addition, additional 'brand' names that the devices are marketed or sold in various countries should be listed for reference.
- Purpose or use on farm.
- Specie(s) - i.e. cattle, buffalo, sheep and/or goats.
- Mounting position or use (i.e. low-line, high-line, AMS, stanchion barns, swing-over).

- Test type requested (i.e. full test, modified test, website update).
- Technical characteristics, drawings, and photograph(s) of device. For those devices that are a modification of a device with existing ICAR-certification, a technical summary of the changes should be included.
- Technical manual outlining functional metering and sampling processes and principles as well as software/firmware documentation.
- Installation procedure.
- Routine test or periodic check procedures for service technicians.
- Operational manual for the farmer.
- AMS herd management software manual (where applicable).

3 Sensor Systems

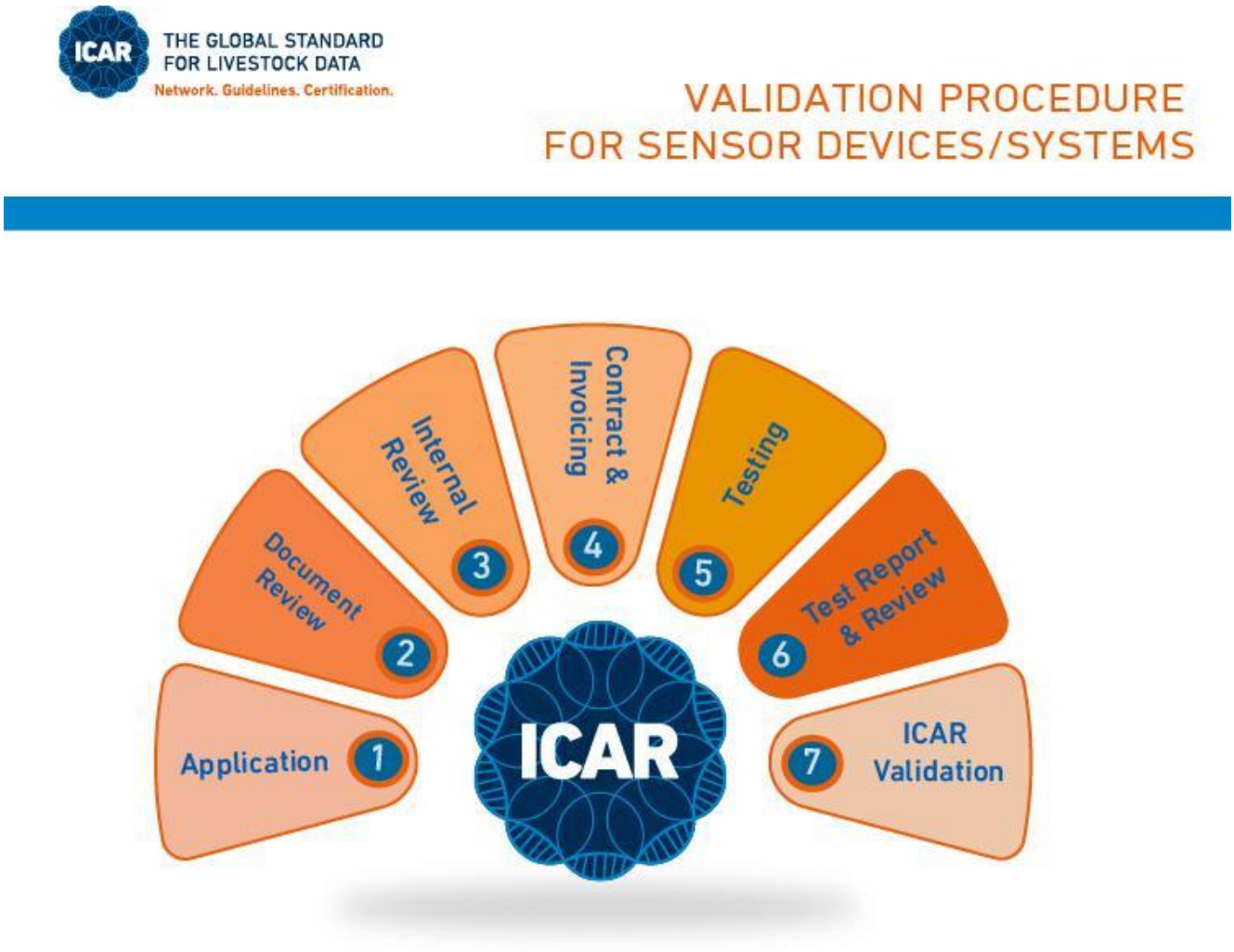
3.1 Overview

Sensor systems used in ICAR Member Organisations for other purposes of official recording could be ICAR-validated. Any new sensor system produced by a manufacturer or any other third party may be used for official recording only after it has been tested and validated by ICAR.

The ICAR validation test for sensor systems will include a review or evaluation of the following, as applicable:

- Definition of the parameter measurement (direct and indirect) & measuring principle
- Evaluation of the bias/repeatability/reproducibility of individual measurements
- Evaluation of the animal identification system (automatic or manual) and the subsequent linkage to individual measurements
- Evaluation of the handling of data, including:
    - transformation of the direct measurements of one parameter to the estimate of the reported parameter,
    - estimates for missing data points,
    - rounding of measurements,
    - outlier removal and/or reporting,
    - precision of reported measurements,
    - other issues associated with data handling as identified during the ICAR test.
- Evaluation of the data interface & transfer to recording organisations and/or other databases
- Evaluation of the sensor system installation parameters and procedures
- Evaluation of the routine or periodic checking procedure(s) for the system components
- Evaluation of the effect of the sensor system on animal well-being

Figure 2. Validation procedure for sensor systems.



3.2 Application

The applicant should apply through the online application form found on the ICAR website.

A complete application includes:

- Clear description of all components of the system: ID, components, software, etc.
- System technical manual.
- Farm operator manual.
- Internal research and validation studies.
- Peer reviewed publications.
- Software manual for use of the system devices.
- Installation procedure.
- Routine test or periodic check procedures for service technicians.
- Technical characteristics, drawings and 2D/3D pictures of the device.

4 Steps following the application

Following receipt of an application for testing either a measuring, recording, or sampling device or a sensor system, the following steps will be taken:

- The Chair of the Sub-Committee for Recording and Sampling Devices will review the application and accompanying documentation, subsequently establish the test procedure, and select the ICAR test centre to perform the test. *The list of ICAR Test Centres may be found here.*
- ICAR will ask the test centre to prepare the test plan proposal including time schedule and costs.
- ICAR issues an umbrella contract and sends it to the applicant together with the test plan and the invoice for the full test fees, which must be fully paid in advance of the test.
- The ICAR test will be scheduled and conducted after the contract is signed and the test fees are paid in full.
- On completion of the test, the test report is sent to ICAR and the Chair of the Sub-Committee. ICAR subsequently circulates the report to Sub-Committee members for review, comments and certification recommendation. *Please refer to Procedure 2 of Section 11 for more detail on the review of test reports and the certification process.*
- ICAR will send the report to the test applicant and, if successful, notification of certification accompanied with an official ICAR certificate.
- The certified device will be added to the relevant ICAR webpage.
- The applicant must tag all the ICAR-certified devices supplied to the market with a non-removable label issued by ICAR. *Please refer to Procedure 3 of Section 11 for more detail on labelling of ICAR-certified devices.*