

WELMEC 10.3

Issue 1

WELMEC

European cooperation in legal metrology

Guide for the use of an alibi recording device (printer or memory) in Measuring Systems for Liquids other than Water



November 2003

Foreword

WELMEC is a cooperation between the legal metrology services of the Member States of the European Union and EFTA. WELMEC has 12 Associate Members that will join the EU in May 2004. This document is one of a number of Guides published by WELMEC to provide guidance to manufacturers of measuring instruments and to notified bodies responsible for conformity assessment of their products. The Guides are purely advisory and do not themselves impose any restrictions or additional technical requirements beyond those contained in relevant EC Directives. Alternative approaches may be acceptable, but the guidance provided in this document represents the considered view of WELMEC as to the best practice to be followed

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EXPLANATORY NOTE

This Guide for the use of an alibi recording device (printer or memory) in Measuring Systems for Liquids other than Water is the result of many discussions during WELMEC WG10 meetings.

It was a wish from many delegates to use as much as possible the terminology and philosophy from WELMEC Guide 2.5 for modular approach and testing of PC's and other digital peripheral devices (Non-automatic Weighing Instruments). The approach followed in this Guide 10.3 is similar to the approach of point 3.1, 3rd and 4th paragraph, of WELMEC Guide 2.5, i.e.

Directive 90/384 states in the Preliminary Observation to Annex 1 that normally the whole of the non-automatic weighing instrument and its peripherals used for "Art. 1.2.a uses" (thus the weighing system 6) is subject to the essential requirements. Only if an alibi printer (APR) or a data storage device (DSD) that meet the essential requirements is used, peripherals that repeat the result are not subject to the essential requirements - with the exception of direct sales to the public where all displays and printers for the vendor and the customer must fulfil the essential requirements.

Comment: the use of an alibi recording device (printer or storage) makes sense only if the weighing result used for the transaction is printed or recorded together with an identification (see 6.4 of this guide). The identification gives the possibility to the client of the transaction or to a third party involved in the result) to check the correctness of weighing data in case of doubt. On the other hand, weighing results which are not used for transactions need not be stored or recorded in the alibi recording device. If the alibi recording device ceases to operate, then the weighing system should either cease to operate or alert the operator.

Unfortunately, the terminology used in Directive 90/384/EC differs from that used in OIML R117. Because this Guide concerns an interpretation of OIML R117 the terminology of this OIML Recommendation has been used.

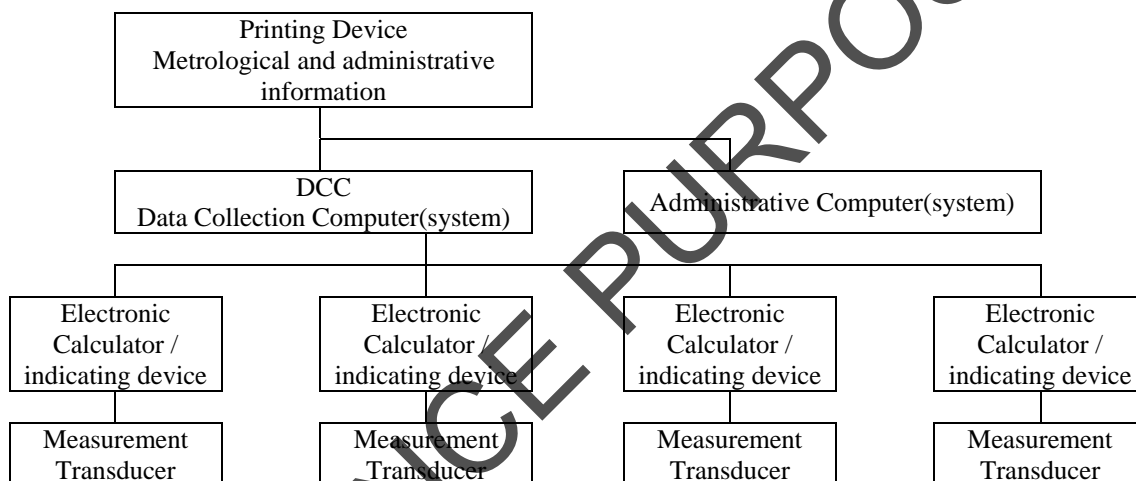
For that reason in this Guide "memory device" is used instead of "data storage device", but the requirements in 3.13 are consistent with the Guidance for Data Storage Devices in point 6 of WELMEC Guide 2.5.

The WELMEC 2.5 approach with respect of "simple recipient devices" could not be accepted for Measuring Systems for Liquids other than Water" because such an approach is not in accordance with OIML R117.

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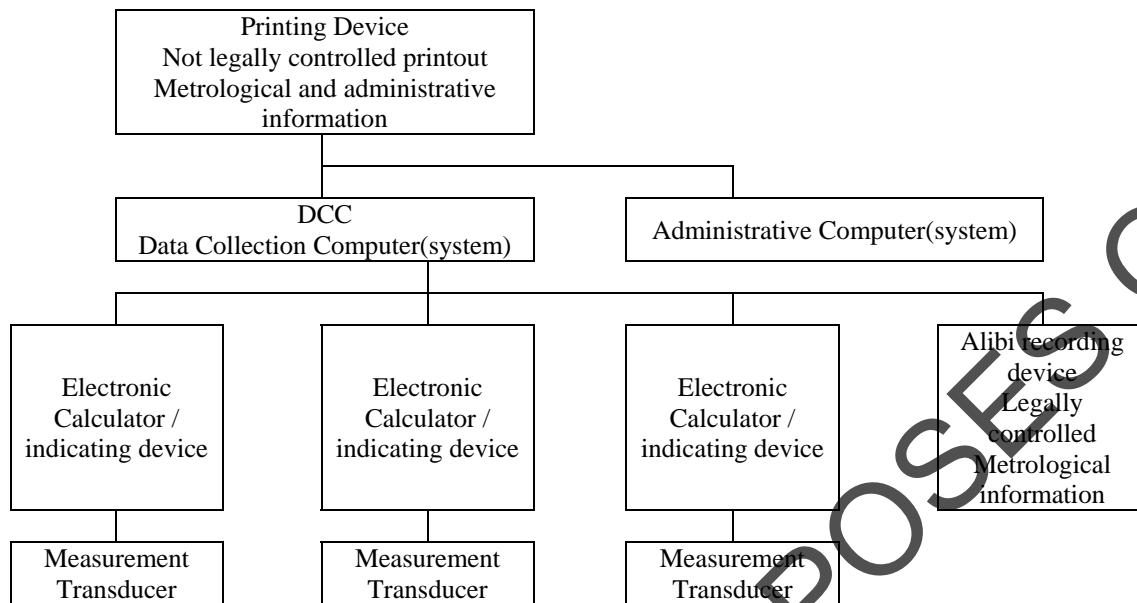
1. Introduction

Often, on large industrial plants, like measuring systems for the loading ships and for loading of rail and road tankers, the processing of measurement data is automated to facilitate administrative processes and allow central storage of data. In general this means that the user wishes to apply a system design that deviates from the straightforward layout of: measurement transducer - electronic calculator indicating device – printing device. In many cases the user would want to install components between the electronic calculator indicating device and the printing device which generates the print for the parties interested in the transaction, as shown in the example below.



From a metrological point of view both the Data Collection Computer system and the Administrative Computer system are now a part of the complete measuring system and should be subject to metrological control. In practice both the Data Collection Computer system and the Administrative Computer system can consist of large number of components on which huge amounts of software are stored. Because of this it is practically impossible to perform a Type Approval investigation on such systems.

Therefore, under the conditions described in this Guide, it is allowed to use the following system design:



In this case the electronic calculator indicating devices directly generate a so-called alibi record on an alibi recording device (printer or memory), which is under legal control. They also send the measurement data to the Data Collection Computer system and the Administrative Computer system. These systems can perform, for example, the following actions:

- adding supplier and / or recipient identification
- adding Purchase order number
- etc.

After such processes a second registration is generated, which is handed to the supplier (vendor) and/or recipient (customer). This registration can be left out of legal control if the requirements hereafter are fulfilled.

Before the requirements are given reference should be made to the following points in OIML R117

- 2.1.1: as a rule ancillary devices, like printing and memory devices, are optional. However, OIML R117 make some of them mandatory, or prohibits some of them, for particular types of measuring systems. In addition, national or international regulations may make some of these devices mandatory in relation to the utilization of the measuring system.
- the note to T1.5: ancillary devices, like printing and memory devices may or may not be subject to legal metrological control. It should be clear that this could only be the case for ancillary devices which are not mandatory. If they are mandatory in application of OIML R117 or of a national or international regulation, they are considered as integral parts of the measuring system, they are subject to control, and they shall meet the requirements of OIML R117.

- the note to 2.2.1: it is advisable that national or international regulations include provisions prescribing that primary indications shall remain accessible to the parties interested in a transaction up to the settlement of this transaction. In such a case it is not required that the parties interested in the transaction shall be provided permanently with the results of measurement, but only they may have access to these results, for example, in case of dispute.

The lack of clear harmonized provisions, describing that “Primary indications shall remain accessible to all parties, interested in a transaction, until the result of the measurement is used in the case of a possible dispute” has initiated the issue of this guidance document by WELMEC WG10.

2. Scope

This document is applicable for measuring systems including an alibi record on an alibi recording device (printer or memory), which is under legal control, to be used in case of dispute. It does not apply to measuring systems with self-service devices intended for direct selling to the public. Nor does it apply to measuring systems with self-service devices, when the legal authority requires a printing device for the issue of a receipt to the recipient in application of 5.11 in OIML R117.

This guideline is intended to serve as a preliminary document stating basic requirements on alibi recording devices for a special type of measuring instrument. It shall not anticipate general requirements for all classes of measuring instruments which will be worked out by WELMEC WG7 or other WELMEC working groups. So this guide shall be valid until general requirements concerning alibi recording devices for measuring instruments under legal control will be elaborated, if necessary in respect on specific measuring purposes.

3. Requirements

- 3.1 If a measuring system is provided with at least one additional primary indication (meant is additional to the indication device of the meter) by means of a printing or memory device on which the measurement data are registered for the benefit of both parties interested in the transaction, i.e. the supplier (vendor) and the recipient (customer) all other ancillary devices, repeating or transmitting the same information, need not be subject to control.
- 3.2 Ancillary devices which are subject to control shall meet the requirements of OIML R117 (2.2.2 of OIML R117).
- 3.3 When ancillary devices are not subject to control, one shall verify that these devices do not affect the correct operation of the measuring system. In particular, the system shall continue to operate correctly and its metrological functions shall not be affected when the peripheral equipment is connected or disconnected (2.2.3 of OIML R117).

- 3.4 Ancillary devices not being subject to control shall bear a legend which is clearly visible to the vendor and/or customer to indicate that they are not controlled when they display a measurement result visible to the parties interested in this result.

Note: Contrary to 2.2.3 of OIML R117, it is not required that such a legend shall be present on each printout not intended for the recipient (customer).

- 3.5 If there are one or more legal metrological controlled ancillary devices (all ancillary devices to be used for duplication) available for the benefit of both parties interested in the transaction and to keep a trace of commercial transactions, providing proof in case of a dispute or doubt, the printed and/or memorized data shall contain at least the measured quantity and sufficient information to identify the particular transaction (e.g. identification of the recipient, location, date and time, transaction number, etc.)
- 3.6 Before measurement data may be transmitted to ancillary devices which are not subject to legal metrology control, it has to be verified (checking facilities) that these data are printed and/or memorized according to the requirements of OIML R117.
- 3.7 The registered measurement data shall remain accessible to the parties interested in the transaction for sufficient time, according to rules of trade
- 3.8 The owner of the measuring system is considered to have access to the registered measurement data even when he does not use this possibility in practice (note to 2.2.1 of OIML R117).
- 3.9 It is not required that the parties interested in the transaction shall be provided permanently with the results of measurement, but only that they may have access to these results, for example, in case of dispute (note to 2.2.1 of OIML R117).
- 3.10 The owner of the measurement system is considered to be supplier (vendor).
- 3.11 The supplier is responsible for informing the recipient (customer) about the accessibility of the printed and/or memorized data in case of dispute.
Means for giving this kind of information may be one or more of the following:
- * an inscription in the vicinity of the indicating device
 - * a reference on a non-legally controlled indicating/printing/memory device to the alibi record.
 - * other means that can not be overlooked and/or misinterpreted by the recipient
- 3.12 The supplier is responsible for the accessibility to the legally printed and/or memorized data by the recipient; in case this access is not controlled by the recipient himself, the supplier is forced to give this access.
This means that:
- * the recipient should be able to contact the supplier, and
 - * that the supplier must cooperate with the recipient, and
 - * that it must be possible to trace the alibi record, based on the information available to the recipient and/or the supplier.

- 3.13 In case the ancillary device mentioned in 3.5. is a memory device, the following provisions apply.
- 3.13.1 Devices used to read stored information are considered as included in the memory devices (3.5.1 of OIML R117).
- 3.13.2 The medium on which data are stored must have sufficient permanency to ensure that the data are not corrupted under normal storage conditions. There shall be sufficient memory storage for any particular application. (3.5.2 of OIML R117).
- 3.13.3 Stored data may be deleted after these data are printed by a printing device subject to legal control.
- 3.13.4 When the storage is full, it is permitted to delete memorised data when both the following conditions are met:
- data are deleted in the same order as the recording order and the rules established for the particular application are respected,
 - deletion is carried out after a special manual operation.
- (3.5.3 of OIML R117).
- 3.13.5 The data memorised must be protected against unintentional and intentional changes with common software tools.
- 3.13.6 Memory devices shall be fitted with checking facilities according to 4.3.5. of OIML R117. The aim of the checking facility is to ensure that stored data correspond to the data provided by the calculator and that the restored data correspond to stored data. (3.5.5 of OIML R117).