



NATIONAL WEIGHTS AND MEASURES LABORATORY

**The Non-automatic  
Weighing Instruments  
Regulations 2000  
– (S.I. 2000 no 3236)  
Notes for Guidance**

**dti**

A DTI SERVICE



**NATIONAL WEIGHTS AND  
MEASURES LABORATORY**

**EXECUTIVE AGENCY OF DTI**

The DTI drives our ambition of 'prosperity for all' by working to create the best environment for business success in the UK. We help people and companies become more productive by promoting enterprise, innovation and creativity.

We champion UK business at home and abroad. We invest heavily in world-class science and technology. We protect the rights of working people and consumers. And we stand up for fair and open markets in the UK, Europe and the world.

# Contents

- Health and Safety at Work Act 1974
- Foreword
- Introduction
- Background
- Conformity assessment procedures
- Implementation of the Directive
- Preamble
- Part I, Preliminary
- Applying for approved body status
- Part II, Approval and certification of non-automatic weighing instruments
- Note in relation to national approvals
- EC declaration of type conformity in the case of used instruments
- General verification matters: (a) Gravity
- General verification matters: (b) Re-verification
- General verification matters: (c) Conformity documentation
- Part III, Use for trade of non-automatic weighing instruments
- Part IV, General
- Schedule 1
- Schedule 2
- Schedule 3
- Schedule 4
- Schedule 5
- Annex 1, Extracts from Weights & Measures Act 1985
- Annex 2, Gravity table
- Annex 3, Form of information on judicial remedies
- Annex 4, Bibliography
- Annex 5, Descriptions of the stickers and the identification number
- Annex 6, Descriptions of supplementary legislation
- Annex 7, Applicability of Regulations
- Annex 8, Guidance notes for use by approving authorities undertaking initial verification of non-automatic weighing instruments in accordance with the International Recommendation R 76-1 Edition 1992

# Health and Safety at Work Act 1974

Nothing in these Notes for Guidance should be construed as overriding, amending or deferring safety regulations and requirements issued by the Health and Safety Executive (in Northern Ireland the Health and Safety Executive for Northern Ireland), in connection with the conduct of persons and the condition and use of machinery and equipment on any premises.

## Foreword

The Non-automatic Weighing Instruments Regulations 2000 replaced and consolidated the Non-automatic Weighing Instruments (EEC Requirements) Regulations 1995, as amended. The 1995 Regulations implemented Council Directive 90/384/EEC as amended by the CE Marking Directive 93/68/EEC. The 2000 Regulations maintain the implementation of the Directive and continue to provide for the harmonisation of laws on non-automatic weighing instruments within Member States, thereby creating a single market for these instruments.

The system of approval and verification of instruments under the Directive has been operating successfully for several years, and manufacturers have benefited enormously from its introduction, through savings in costs on both approvals and verification, and through the widening of an easily-accessible market.

The input of WELMEC, the European Co-operation in Legal Metrology, to the understanding and interpretation of the Directive must also be acknowledged. WELMEC continues to consider questions of application and implementation, particularly in areas of technical uncertainty and acts as a forum for seeking advice from the European Commission on common issues. It is hoped that through the medium of these Notes for Guidance, the conclusions of discussions within WELMEC will benefit a wider audience. (See paragraph 251 below for background information about WELMEC).

# Introduction

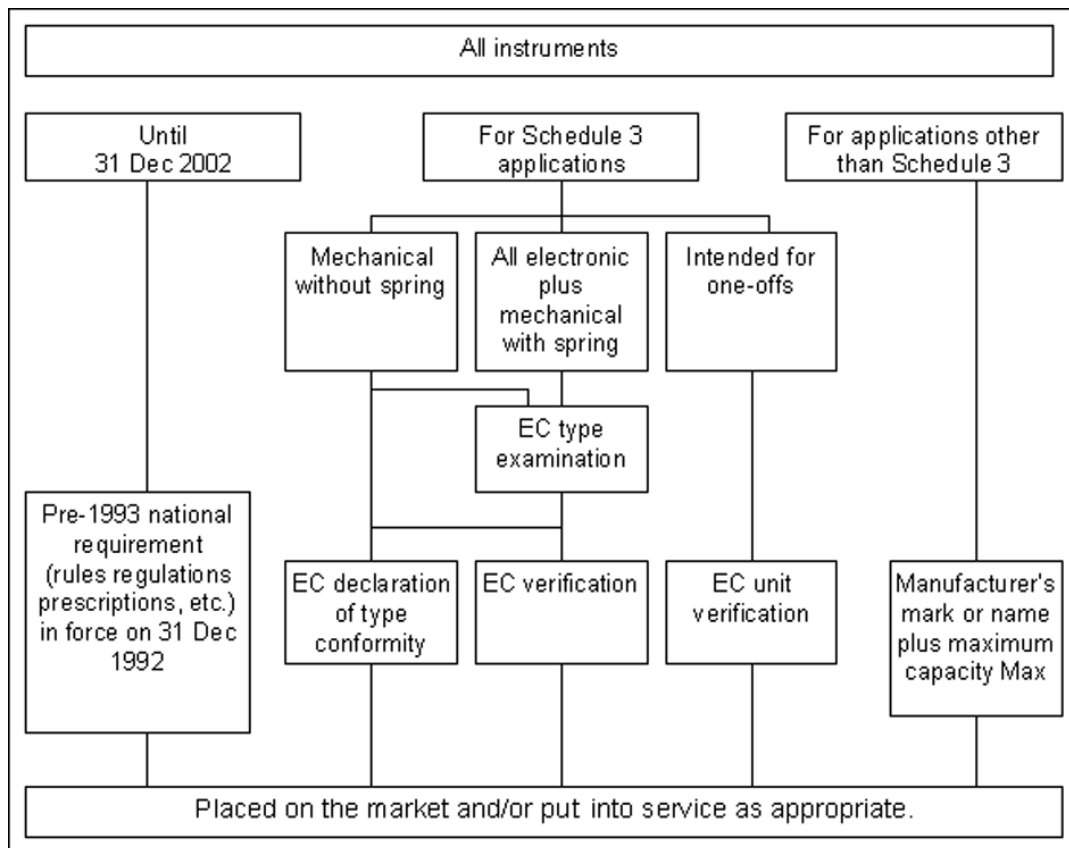
1. These Notes have been prepared to help explain the Regulations that maintain the implementation of the Directive on non-automatic weighing instruments into UK law. The Notes are for the guidance of all concerned with observing or applying the controls required by the Regulations.
2. These Notes for Guidance are not and do not purport to be an authoritative interpretation of the law. The law can only be interpreted by the Courts, although the Secretary of State does have certain powers to adjudicate when differences arise on interpretation of the 2000 Regulations in Part III (section 15(4)\* of the Weights and Measures Act 1985). Where examples are given throughout this guidance they represent an opinion and do not form an authoritative interpretation. In case of any doubt, users of this guidance are advised to seek their own independent, including legal, advice.
3. The Commission (of the European Communities) may also issue guidance from time to time on how the Directive should be interpreted and enforced in the Member States. When such guidance is issued, attention will be drawn to it by means of appropriate publicity channels.

# Background

4. Directive 90/384/EEC, was adopted by the EC Council of Ministers on 20 June 1990. It consists of 16 Articles and 6 Annexes and provides (subject to the transitional provisions) for the repeal of the earlier Directive on non-automatic weighing machines, 73/360/EEC. Member States were required to implement the provisions of the Directive into their national law by 1 July 1992 and to apply the new legislation with effect from 1 January 1993. The CE marking Directive 93/68/EEC, which came into effect on 1 January 1995, has amended the Directive.
5. Directive 90/384/EEC is one of a number of "New Approach" Directives adopted by the Council of the European Communities: it was the first such Directive on measuring instruments.
6. The "New Approach" to Technical Harmonisation is an important part of the process for achieving the single market. It is intended to remove the technical barriers to trade caused by differing national laws. Directives agreed under the New Approach allow for the free movement, (placing on the market and putting into service) in the Community of goods that conform to the essential and other requirements of those Directives. Such products carry the "CE marking", and no Member State is allowed to refuse complying products access to its market. In this case all compliant non-automatic weighing instruments covered by the Directive have free movement throughout the Community.
7. However, it will be noted that the "use" provisions in Part III of the 2000 Regulations do not derive from the Directive and, accordingly, that Part is made under powers under the Weights and Measures Act (see Preamble below).

# Conformity assessment procedures

8. Annex II of the Directive provides details of the assessment procedures available to ascertain conformity of instruments to the essential requirements (Annex I) and the other provisions of the Directive for the purposes of placing on the market/putting into service (for the first time)(in the Community). The applicant under Article 8 of the Directive (as implemented in the 2000 Regulations) has a choice of one of the following procedures:
- EC type examination followed by EC verification;
  - EC type examination followed by EC declaration of type conformity (guarantee of production quality); or
  - EC unit verification.
9. Exemption is provided from EC type examination for instruments which do not use electronic devices and on which the load-measuring device does not use a spring to balance the load. These instruments still have to meet the essential requirements and other provisions of the Directive. These instruments can be submitted for EC type examination.
10. The following chart indicates the choice of routes through the conformity assessment procedures.



*NB Equipment for which the certificate of approval has expired, but which was in use before the date on which the certificate expired, may continue in use and also be repaired or re-verified if necessary. It must be emphasised that any repair made must be only to correct the fault occurring and not to modify or vary the design; similarly, additions cannot be made to the equipment that would necessitate a change in the approval variant number. (Paragraph 28 below refers)*

# Implementation of the Directive

11. Member States decide how the requirements of the Directive should be transposed into their own "laws, regulations and administrative procedures" (Article 15.1). In the UK the following statutory instruments have been made for this purpose:
  - a. the Non-automatic Weighing Instruments Regulations 2000, SI 2000/3236 "the 2000 Regulations";
  - b. the Weights and Measures (Packaged Goods)(Amendment) Regulations 1992, SI 1992/1580;
  - c. the Weights and Measures (Isle of Man) Order 1992, SI 1992/1591;
  - d. the Weights and Measures (Jersey) Order 1992, SI 1992/1592;
  - e. the Weights and Measures (Northern Ireland) Order 1992, SI 1992/1593;
  - f. Non-automatic Weighing Instruments (Use for Trade) Regulations (Northern Ireland) 2001 S.R. 2001 No. 202 "the Northern Ireland Regulations";
  - g. the Weights and Measures (Packaged Goods) (Amendment) Regulations (Northern Ireland) 1992, SR 1992/485;
  - h. the Weights and Measures (Isle of Man) Order (Northern Ireland) 1992, SR 1992/486;
  - i. the Weights and Measures (Jersey) Order (Northern Ireland) 1992, SR 1992/487;
  - j. the Weights and Measures (Great Britain) Order (Northern Ireland) 1992, SR 1992/488;
  - k. the Measuring Instruments (EEC Requirements) (Fees) Regulations 2004 SI2004/1300;
  - l. the Weights and Measures (Guernsey and Alderney) Order 1995, SI 1995/1011.

The 2000 Regulations consolidated and amended the Non-automatic Weighing Instruments (EEC Requirements) Regulations 1995, SI 1995/1907, the Non-automatic Weighing Instruments (EEC Requirements) (Amendment) Regulations 1997, SI 1997/3035 and the Non-automatic Weighing Instruments (EEC Requirements) (Amendment) Regulations 1998, SI 1998/2994.

12. The Notes which follow are about the principal statutory instrument, the 2000 Regulations are referred to at 11 (a) above, together with the Northern Ireland Regulations at (e) above, which are the main means by which the Directive's provisions have been transposed into UK law.
13. The Notes below consider each regulation of or Schedule to the 2000 Regulations in turn, offering comment on the provision, with reference where necessary to the Directive or other relevant documentation.

# Preamble

14. Unusually in weights and measures legislation the 2000 Regulations have been made under powers in two different Acts of Parliament - the European Communities Act 1972 and the Weights and Measures Act 1985. Part III of the Regulations is made under the latter Act, whilst all the other provisions are made under the European Communities Act.

## Part I - Preliminary

### 1 Citation, commencement, revocation and transitional provisions

15. This gives the title of the 2000 Regulations and states the coming into force date of 1 January 2001. This provision also revokes the Non-automatic Weighing Instruments (EEC Requirements) Regulations 1995 (as amended).

### 2 Interpretation

16. This regulation gives definitions to many of the terms used in the 2000 Regulations. Other terms may be defined where they appear, or by reference to a definition provided elsewhere; for example the meaning of "multiple weighing" in 28(6) and "ballast" in 28(5).
17. Other expressions used in the 2000 Regulations are used also in the Weights and Measures Act 1985 and have the same meanings as in the Act: see the final provision of paragraph (1).
18. There is no definition of "manufacturer", but this is taken to mean the entity that produces non-automatic weighing instruments. Where used, for example, in relation to regulation 13 (see also below), "manufacturer" would mean the entity eligible to make its own EC declarations of type conformity. Manufacturer is considered further in Section 13 of these notes, the Blue Guide and the MID also give useful definitions of manufacturer.
19. The expression "approved body" is used in the 2000 Regulations (and within these Notes), rather than Notified Body (which is used in the Directive) on the basis of precedents elsewhere.
20. It should be noted that the 2000 Regulations include a definition for "authorised representative" introduced in the 1995 Regulations which also replaced the definition of "EC mark of conformity" with one for "CE marking". Definitions for "EEA State" and for "Member State" were introduced, and "identification number" replaced "identification symbol".
21. For descriptions of the various stickers and the identification number see Annex 5. Details of the symbols for scale intervals are provided in the notes (below) on Schedule 2 paragraph 2 to the 2000 Regulations.

## 2(4)

22. In accordance with the document cited in the footnote to the regulation, the definitions are:

**maximum capacity** - maximum weighing capacity, not taking into account the additive tare capacity

**minimum capacity** - value of the load below which the weighing results may be subject to an excessive relative error

**weighing range** - range between the minimum and maximum capacities

## 3(1) Application of the Regulations

23. The 2000 Regulations cover all non-automatic weighing instruments (see definition of instrument in the 2000 Regulations): those that are subject to the essential requirements (regulation 5) and those that are not (regulation 6). Statutory instruments made under the latter do not apply to the Crown. There is therefore no overall exemption for the Crown in these Regulations other than in respect of the provisions of Part III of the 2000 Regulations.

24. Instruments subject to the essential requirements in Schedule 2 (regulation 5(1)) are those used for applications in Schedule 3.

25. From 1 January 2003 non-automatic weighing instruments that are first put into service for the purpose of use for a Schedule 3 application in the UK will be subject to the 2000 Regulations. This may mean that wider enforcement of the Regulations will be required than was the case up to 31 December 2002 during the transitional arrangements.

26. Under regulation 18(7) devices associated with or part of an instrument which are used for a Schedule 3 application and satisfy the conditions outlined in the 'Preliminary observation' to Schedule 2 to the 2000 Regulations may be exempted from the essential requirements but must bear the red 'M' symbol.

27. Weighbridges within ports, if they are available solely to weigh lorries to be loaded onto ferries for the purpose of satisfying the Merchant Shipping (Weighing of Goods Vehicles and other Cargo) Regulations 1988, SI 1988/1275, as amended by SI 1989/270, are not "available for use by the public" and are therefore not in use for trade, but come nonetheless within the applications listed in Schedule 3 and as a consequence must meet the relevant legislative requirements of the 2000 Regulations.

## 3(2) Transitional arrangements

28. The purpose of 3(2) is to provide details of the transitional circumstances in which instruments will not be subject to the requirements of the 2000 Regulations. Whilst the transitional period has now expired and the 2000 Regulations (or their Northern Ireland equivalent) are mandatory for any person placing an instrument on the market or putting it into service in the UK, such instruments may either be in use in accordance with other sets of Regulations, or without any specific legal provision; provided that they were brought into use before the end of the derogation period on 31 December 2002. The derogation provided that instruments conforming to "the rules in force" before 1 January 1993 could

continue to be placed on the market and put into service in a Member State for a period of ten years from that date.

29. All patterns of approval made under either national requirements or Directive 73/360/EEC expired on 31 December 2002. All instruments made to those patterns cannot be initially verified. Expiry of the certificate does not prevent subsequent re-verification.
30. The provision at 3(2)(e) provides for situations in which no national applicable legislation was in force before 1 January 1993. After that date instruments used for a Schedule 3 application are subject to the 2000 Regulations.
31. Instruments in service may continue in use indefinitely, subject to compliance with any relevant requirements elsewhere e.g. metrication. The stamp or, as the case may be, the mark of EEC initial verification may be obliterated when the instrument becomes inaccurate. It may then be repaired and submitted again for passing as fit for use for trade or initial verification in accordance with the relevant Regulations.
32. The Council Directive relating to non-automatic weighing machines, No 73/360/EEC as amended, was implemented by the Measuring Instruments (EEC Requirements) (Amendment No 3) Regulations 1979, SI 1979/1459, in January 1980. (The Directive applies to metric, mechanical (non-electronic) equipment only). This implementation is now embodied in the Measuring Instruments (EEC Requirements) Regulations 1988, SI 1988/186. These latter Regulations operate in parallel with the 2000 Regulations.
33. Non-automatic weighing machines complying with Directive 73/360/EEC and which consequently bear the mark of EEC initial verification (the e-mark) do not need to comply with the 2000 Regulations as well. Such machines are additionally subject to the purpose and manner of use requirements in the Weighing Equipment (Non-automatic Weighing Machines) Regulations 2000, SI 2000/932 or their Northern Ireland equivalent, the Weighing Equipment (Non-automatic Weighing Machines) Regulations (Northern Ireland) 2005, see regulation 3(3) therein.

#### **4 Placing on the market, putting into service and use of instruments**

34. This regulation draws in part on article 2 of the Directive, which makes provision for market surveillance. It draws a distinction between use, or possession for use of an instrument for any Schedule 3 application and the placing on the market of an instrument unless the requirements of regulation 5 (essential requirements) or 6 (marking requirements), or the equivalent provisions of the Directive, as implemented in another Member State, are met; paragraph (2) relating to any instrument for a Schedule 3 application precludes its putting into service unless it meets the requirements of regulation 5 (i.e. with certain limited exceptions the essential requirements). Paragraph (3) relating to use or possession for use, of an instrument for any Schedule 3 application requires that the instrument must comply with the requirements of regulation 5 (or its equivalent). Paragraphs (4) and (5) provide for offences for breaches of earlier paragraphs and defences against the forfeiture of instruments.

#### **5 Instruments used for Schedule 3 applications to satisfy the essential requirements**

35. The Directive under Article 1 makes a distinction between two categories of instruments:
  - a. instruments used for specified purposes (Schedule 3 applications); and
  - b. all other applications.

36. Only those instruments used for the regulated applications in (a) need to satisfy the essential requirements (set out in Schedule 2 to the 2000 Regulations), although the free movement of all instruments to which the Directive applies is guaranteed provided they comply with the relevant requirements.
37. Devices included in or connected to the instrument where those devices are not used for a Schedule 3 application, or which are used for a Schedule 3 application but bear the restrictive use symbol (referred to in paragraph 3 of Annex IV to the Directive) do not need to comply with the essential requirements.
38. One of the ways in which the essential requirements can be met is by an instrument meeting EN 45501. This standard was published on 1 October 1992 and confirmed as a harmonised standard for the purposes of the Directive by the Commission. The standard was based on the International Organisation of Legal Metrology (OIML) Recommendation R 76, and was drawn up jointly by CEN and CENELEC, the European Standardisation bodies.
39. Any documentation relating to conformity assessment procedures (e.g. EC type-examination, EC verification), shall be in the official language of the Member State in which the procedure is being carried out, or in another language acceptable to those carrying out the relevant procedure.

## **6 Information to be borne by instruments not subject to EC conformity assessment procedures**

40. This regulation is concerned with those instruments to be placed on the market, put into service, used or possessed for use for non schedule 3 applications. These would include, for example domestic scales (kitchen and bathroom).
41. Paragraph 234 gives further information on the units of measurement that may be used for these instruments. Paragraphs 237-240 gives further information in relation to private postal scales which may be supplied for domestic use.
42. The requirements of the regulation are to mark the instrument with the manufacturer's name or mark and the maximum capacity. Subject to what is said in paragraph 18 on manufacturers it would be inappropriate to apply the name of a wholesaler or distributor.
43. Such instruments will not be affixed with the green metrology sticker since they are not subject to the requirements of the conformity assessment procedures. They will only be marked with the CE mark in compliance with the requirements of other new approach Directives.

## **7 Instruments conforming with relevant national standards**

44. This provision deals with the status of relevant national standards, compliance with one of which would be a means of satisfying the equivalent essential requirements. The standard may be one adopted by the UK or by one of the other Member States. The relevant standard is EN 45501 (a European standard published as a British standard as BS EN 45501).

## **8 Appropriate equipment for tests**

### **8(1)**

45. The 2000 Regulations provide for appropriate weights to be used for the purposes of verification and inspection.

Dependant on the accuracy of the instrument these can be:

- a) Weights complying with the Weights and Measures (Local and Working Standard Weights and Testing Equipment) Regulations 1986, SI1986/1685 (as amended), or their Northern Ireland equivalents.
- b) Weights complying with Directive 74/148/EEC.
- c) Equivalent Equipment as defined in Regulation 8(3).

46. The table in regulation 8 has been constructed with two major considerations in mind.

- a) To apply the 1/3rd rule in paragraph 3.7.1 of EN45501 which states "The standard weights or standard masses used for the verification of an instrument shall not have an error greater than 1/3rd the maximum permissible error of the instrument for the applied load".
- b) To ensure the weights used are suitable for their intended purpose and in particular have known traceability to national standards.

47. If a company wishes to make declarations of EC type conformity, but does not possess the correct weights they may be able to:

- a) Make arrangements with a local weights and measures authority to use working standards or test equipment.
- b) Make arrangements to use weights conforming to the 1974 directive from any appropriate source.

48. The compliance of weights to the 1974 Directive can be established either through EEC initial verification by either a local weights and measures authority, or calibration by a UKAS accredited laboratory.

49. It is felt weights coming from any of the sources described in paragraph 45 will be suitable for the purposes in regulation 11(4), 12(4), 13(7) and 38(1).

50. Whatever weights are used, care must be taken to ensure that they remain within the prescribed limits of error. Depending on circumstances such as environmental conditions etc, it may be necessary to carry out re-calibration more frequently than the intervals required by statute. In extreme conditions it may be appropriate to re-calibrate before each use. It is important to build a calibration history for a set of weights. Manufacturers making EC Declarations will undoubtedly cover this in their approved quality system.

## **8(2)**

51. Regulation 8(2) requires a certain proportion of weights (from the table at regulation 8(1)) to be used for the testing of instruments.
52. The quantity of weights that must be used will depend upon the maximum capacity of the instrument under test. For instruments that have a maximum capacity of more than 1 tonne, provided that the value of the weights used equals at least 50% of the maximum capacity, or 1 tonne, whichever is the greater, the balance of the test load may be made up of any other constant load. This means, for example, that when testing a weighbridge of 60 tonnes capacity, it will be necessary to use 30 tonnes of test weights.
53. The portion of standard weights required for testing may be reduced if the repeatability of the instrument is good. In order to determine this, it is tested over three weighings with a weight of approximately 50% of the maximum capacity. These tests need not be carried out with test weights, as the absolute error is not required; it is simply any variation between the three weighings which needs to be established. The test could be achieved by, for example, positioning a vehicle on the weighbridge in the same position on three successive occasions. If these tests reveal that the repeatability error is not greater than 0.3e, the portion of standard weights used for subsequent testing may be reduced to 35% of the maximum capacity of the instrument (21 tonnes of standard weights for a 60 tonne weighbridge). If these tests reveal that the repeatability error is not greater than 0.2e, the portion of standard weights used for subsequent testing may be reduced to 20% of the maximum capacity of the instrument (12 tonnes of standard weights for a 60 tonne weighbridge). Unless the environmental conditions are near perfect, i.e. no rain or wind effects, then it will be extremely difficult to achieve these reductions. As before, any other constant material may make up the balance of subsequent test loads. See also Annex 7, point 4.4, regarding substitution of test weights.

## **8(3)**

54. As an alternative to using the weights in the table at regulation 8(1), items of test equipment may be used instead, providing that they have been approved by the Secretary of State (NWML) for use as "equivalent equipment". This should help to alleviate the difficulties relating to having to use weights of up to 50% of the maximum capacity of the instrument under test.
55. Guidance notes on how to apply for approval of "equivalent equipment" have been produced under TE/16, which may be obtained from NWML's Type Approval and Testing Business Team, tel: 020 8943 7272. Equipment suitable for use for testing may potentially include any weighing or measuring equipment, any other metrological equipment and any article for use in connection with such equipment; but would need to meet one-third of the maximum permissible error (m.p.e.) for the class of equipment it will be used to test, as well as meeting certain other metrological requirements. Applications for approval should be made on form TE/02, also available from the Type Approval and Testing Business Team. Information accompanying the application would need to include technical details and drawings, test data and an operational description of the equipment; and where appropriate, a representative example of the equipment. NWML will issue acceptance reports where applications for approval of "equivalent equipment" are successful. Before making an application, potential applicants may wish to discuss their proposals with NWML

engineers, in which case application form TE/01 for consultancy services should be completed.

## **9 Designation of bodies to exercise functions under the Regulations**

56. Under the Directive, approved bodies are required for the tasks pertaining to the conformity assessment procedures:-

- EC type examination
- Quality system approval for and EC surveillance of those carrying out EC declaration of type conformity
- EC verification
- EC unit verification

A list of approved bodies may be found on the WELMEC website at [www.welmec.org](http://www.welmec.org). The names etc of designated bodies are also given on the European Metrological Type Approval Service (EMeTAS) CD, which is available to weights and measures authorities from the EMeTAS Consortium, Cornwall County Council, Old County Hall, Truro, Cornwall TR1 3AY and which is available from Qualicon, at Hoge Bakstraat 1, 3311 W J Dordrecht, tel: +31 78 639 9290, fax: +31 78 639 9284, e-mail: [wkool@xs4all.nl](mailto:wkool@xs4all.nl).

57. Under this regulation is the procedure carried out by the Secretary of State (NWML) in respect of those bodies which apply and are found to meet the Annex V requirements, and, if appointed, the approved body is notified by the Secretary of State (NWML) to the Commission in Brussels. This regulation indicates the basis on which any appointment will be made.

58. The first two criteria of Annex V refer to the technical and personnel resources provided, while the other three criteria refer to the independence, confidentiality and the civil liability of the approved body.

59. Approved bodies will be required to meet the minimum criteria by ensuring that a quality system is in place for at least those activities covered by the Directive. The minimum criteria can be met by complying with the relevant standards in the EN 45000 (BS 7500) series.

60. The Directive requires Member States to notify the other States and the Commission of those bodies designated to carry out EC type examination, EC unit verification, EC verification, and quality system approval and EC surveillance. The Commission maintains an up-to-date list of these notified bodies (called approved bodies within the 2000 Regulations), and publishes details in the Official Journal of the European Communities. Member States will be able to add the names of newly-designated bodies to the list and to withdraw those which no longer meet the criteria for designation or which cease to be designated for any other reason, e.g. voluntary withdrawal.

61. The Secretary of State (NWML) will notify those approved bodies that are designated for some or all of the tasks in regulation 9(1) and NWML has itself become an approved body in relation to EC type approval and EC unit verification. A body only actually becomes an approved body at the point at which it has been notified to the Commission and the Commission has allocated an approved (notified) body number to it.
62. The first two criteria for approved (notified) bodies, as set out in Annex V to the Directive, which refer to the technical and personnel resources provided, must be audited periodically by the relevant Member States. In Great Britain the overall auditing arrangements for the task of EC verification is co-ordinated by NWML who have an administrative role in each audit and also act as overseer of the protocol. The Protocol is published at [www.nwml.gov.uk/tso/protocol\\_rev1.doc](http://www.nwml.gov.uk/tso/protocol_rev1.doc). NWML reserves the right to conduct the audits themselves at a direct cost to the approved body involved. Alternatively, auditing arrangements for the task of EC verification may be conducted on a cross-authority basis, provided those LWMA's offering their services as auditors have the relevant trained personnel. Auditors will conduct the audits on a similar basis to a BS EN ISO 9000 audit and the audit must include all the conditions referred to under points 1 and 2 of Annex V to the Directive. The level and number of non-conformities found in the auditor's report determines the auditor's recommendation to NWML as to the interval before the next audit, either 1, 2 or 3 years.
63. The 2000 Regulations include provisions introduced in 1995 which permit the Secretary of State to vary or amend an approval of a designated body after it had been granted, and provide for the Secretary of State to ensure that designated bodies continue to meet the criteria against which they were initially judged.
64. Separate designation arrangements are made for the tasks of EC type examination, EC unit verification and quality system approval and EC surveillance - in other words, approved bodies may be designated to carry out all or any of these functions.
65. The Directive places no territorial limitations on the activities of approved bodies (Notified Bodies within the Directive), since any approval relates to that body and not to the country in which it is based. There is therefore no bar under the Directive to LWMA's who have been designated as approved bodies carrying out EC verifications in any area of Great Britain or indeed elsewhere. LWMA's will however wish to consider any limitations to their powers and vires and their ability to obtain warrants etc, imposed by other relevant requirements. Restrictions on LWMA's may stem, for instance, from the various Local Government Acts, or the scope of their insurance cover.

## **9(1)**

66. An accredited certification body (ACB) wishing to be designated for the purpose of approving quality systems and carrying out EC surveillance (regulation 9(1)(b)), must be recognised by UKAS as being able to operate within the necessary scope and have the necessary expertise to assess to the provisions of the Regulations. Unless it is a Government department or agency it will also have to ensure it has appropriate civil liability insurance. To carry out the task set by the Regulations, ACBs will be required under the terms of their designation to include as a full member a competent authorised officer for the purposes of the Non-automatic weighing instruments Regulations 2000 on the quality

system assessment and EC surveillance teams. The authorised officer will be expected to have successfully completed a course recognised by the Governing Body of the International Register of Certificated Auditors.

67. For the purposes of the Secretary of State (NWML) carrying out EC type examination and EC unit verification, and local weights and measures authorities (as approved bodies) carrying out EC verification, self-declaration that the provisions of Annex V have been complied with will be accepted. However, LWMA's are required to undergo auditing to ensure that they are meeting the requirements of the Directive in order to maintain their approved body status.

## Applying for Approved Body status

68. For the ACB or the local weights and measures authorities (LWMA) acting as approved bodies to be placed on a list of those bodies to be notified to the EC Commission, a formal request to NWML will be required by the completion of the appropriate application form:
- ACB NWML INT/02
  - LWMA NWML INT/04 (and see Addendum dated Feb 98)
69. In the case of a LWMA this application form requests details of how the requirements of Annex V are met based on the requirements of EN 45011.
70. Guidance notes are available which give advice on completion of the application forms. The reference numbers for these are NWML INT/01 for ACBs, and NWML INT/03 (and see Addendum dated Feb 98) for LWMA's.
71. Certification of an applicant's quality system by an accredited certification body, or accreditation of testing/calibration facilities by UKAS, will be accepted in support of a request for designation only where it demonstrates compliance with part or all of the appropriate standard(s). Such certification or accreditation is not a pre-requisite for approved body status at this stage.
72. Copies of the relevant guidance notes and application forms may be found on NWML's website at [www.nwml.gov.uk](http://www.nwml.gov.uk). In accordance with the Measuring Instruments (EEC Requirements) (Fees) Regulations 2004, SI 2004/1300, a basic fee is payable for consideration of each application for designation, as described in Schedule 4 to those Regulations.

## Part II - Approval and certification of non-automatic weighing instruments

### 10 EC type examination

73. EC type examination is the procedure whereby the appropriate approved body evaluates the design and operation of the type of instrument to ensure that it is in conformity with the relevant essential requirements and the applicable provisions of the Directive. Only one application for EC type examination may be made to an approved body for a particular instrument. Where the relevant requirements are met the approved body issues an EC type-approval certificate. Where queries subsequently arise in relation to a type approval, such enquiries should be directed towards the body which issued the type approval certificate. NWML should be able to assist in identifying the originator of a certificate and in providing contact details (see also 11(3) below).

#### 10(1)

74. The Secretary of State (NWML) is the approved body in the UK for EC type examination. The formal application for EC type-approval will be equivalent to the registration stage under the national procedures i.e. instrument available for examination, documentation available and the design of the instrument fixed. National NAWI approvals can still be issued for NAWIs that do not use the effect of gravity to determine the mass.
75. To provide the same opportunity to discuss the design and performance of new instruments NWML offers 'Examiner consultancy', to provide guidance to manufacturers on preparing the formal application for EC type-approval.

#### 10(2)

76. Submitters may choose to have technical tests carried out at UKAS accredited laboratories. The submitter must ensure that the laboratory is accredited as a test laboratory and not as a calibration laboratory and that the laboratory has the appropriate scope for the testing required. Laboratories should collaborate with NWML to ensure the use of common procedures and an agreed presentation of results. Test results submitted from another national metrology authority may also be acceptable. The Secretary of State (NWML) will continue to be responsible for the final evaluation of results and examination of instruments to ensure conformity with all the essential requirements in Schedule 2 of the Regulations. This will normally be achieved by the applicant demonstrating compliance with the relevant British Standard implementing EN 45501. Electromagnetic immunity tests are included in this standard with particular reference made to the appropriate IEC publication and issue. In order to meet the requirements of the Directive, testing under any other standard is not appropriate, since EN 45501 is the only standard for which the reference is published in the Directive. Note that although this provides for testing the electromagnetic immunity of an instrument, the standard does not set limits on electromagnetic emissions from the instrument. As such the manufacturers should consider the provisions of the EMC Directive (see notes on regulation 19(1) below).

### **10 (3)**

77. This paragraph states that The Secretary of State (NWML) is to grant approval if the relevant requirements are met.

### **10(4) and (5)**

78. The EC type-approval will normally be granted for a period of 10 years which can then be extended for further periods of 10 years. However where new techniques or other fundamental changes are included this may be restricted to 2 years with the possibility of a single 3 year extension. In both cases, the extension may only be granted provided that the approval is consistent with the latest amendments to the Directive as implemented.

### **10(6)**

79. It is expected that the typical EC type-approval certificate documentation will be in a number of parts-

- a) a "front page" which will certify what type of instrument has been approved, the number of the type-approval certificate (which has to appear on the instrument) and to whom the approval is granted; any conditions may be included here if reasonably short, otherwise reference made to where they are itemised;
- b) an annex containing the technical description including such photographs, drawings and layouts as are considered necessary to describe the instrument fully for the purposes of identification and EC verification; and
- c) the type-examination dossier containing the results of the tests and examinations carried out, plus the original design documentation.

80. Parts (a) and (b) will be published by NWML in the usual way and be available from NWML's Publications Unit on a subscription basis. They will be included on either the EMeTAS CD-Rom or the TS Interlink service as appropriate. The former includes all approvals issued under the NAWI Directive whereas the latter includes all UK national type approval certificates. Approvals given will be valid throughout the United Kingdom (including Northern Ireland) and the rest of the European Union including those EFTA countries who have signed the EEA Agreement. In the UK the number of the type-approval certificate will be in the form: UK-(4 digits), where the 4 digits will be the next number in NWML's certification series beginning with 2250. The effect of the combination will be to create a unique reference number.

### **10(7)**

81. Where EC type-approval is refused, the Secretary of State (NWML) is to give its decision and reasons in writing to the applicant, together with information about the judicial remedies available. The Secretary of State (NWML) will consider representations: the procedure in such cases is described in the booklet "Type Examination at NWML" available from its Type Approval and Testing Business Team.

## **10(10) and (11)**

82. All revisions to the approved type must be notified to the body which granted the original EC type-approval certificate. Those revisions which might affect the conformity of the instrument with the essential requirements or with any stipulated conditions of use will be examined. Those that do so affect the conformity or the conditions are subject to approval by way of an addition to the original EC type-approval certificate.

## **10(12) and (13)**

83. These paragraphs have the effect of limiting the number of applications in respect of any one type to one anywhere in the EU. It is not permissible to apply simultaneously in a number of Member States or to apply to a second country if the type has been refused, or even approved, in the first country of application. The provision is policed by the list-swapping arrangements of paragraph (12) below.

## **10(14)**

84. The arrangements in this paragraph are related to the two preceding paragraphs. They differ from the arrangements under Directive 71/316/EEC where it was the responsibility of the applicant to copy his application to the other Member States, a practice not always followed. It is also different in that certificates will now only be sent to the other Member States on request, rather than automatically on issue. WELMEC has arranged for the computerisation of this work, on the EMeTAS system.

## **Note in relation to national approvals**

85. Type approval for non-automatic weighing instruments will only be granted under the 2000 Regulations (Directive 90/384/EEC). New EEC pattern approvals under Directive 73/360/EEC were no longer permitted after 31 December 1992.
86. Renewals and variant approvals to existing national pattern approvals were permitted but are not valid after 31 December 2002.

## **11 EC verification**

87. EC verification is the procedure whereby the approved body checks and attests that instruments are in conformity with an approved type (i.e. pattern) and/or satisfy the requirements of the Directive. In practice this means checking the instrument for compliance with the type approval certificate and other related documentation, and checking the metrological performance against EN45501.

## **11(1) and (2)**

88. The manufacturer or his authorised representative is responsible for ensuring that the manufacturing process will result in instruments which conform with the approved type and the relevant requirements of the Directive. Where they are so satisfied, the CE marking and

sticker may be applied to each instrument, and a written declaration of conformity drawn up. It should be noted that application of the CE marking signifies not only that the requirements of the 2000 Regulations (i.e. Directive 90/384/EEC) have been met, but also that all other relevant Directives have been met (see 19 below).

### **11(3)**

89. This paragraph applies to first EC verification of an instrument. The instrument's manufacturer or his authorised representative established in the Community may apply for the necessary examinations and tests to be carried out. The approved body to which application is made may request a copy of the EC type-approval certificate including any documentation referred to in the type approval certificate e.g. test certificates, manufacturer's declaration of compatibility of modules (see section on 18(2) to (4) below), operators manuals, arrangement drawings, if required for that type, or the design documentation (for which see Schedule 1). A fee will be payable for EC verification. Each approved body which is a local weights and measures authority has the power to set its own fees for this work in section 76 of the Weights and Measures Act 1985.
90. There is a requirement, in regulation 11(3)(a), for the manufacturer to provide a copy of the EC type-approval certificate. Where the Secretary of State (NWML) has granted EC type approval, copies of the certificates will be made available in the same way as for those issued under section 12 of the Weights and Measures Act 1985. NWML offers a translation facility to manufacturers seeking type approval, to cater for those intending to export their instruments to other Member States. Certificates that are issued by the Secretary of State (NWML) as part of a type-approval package may be translated into other languages. The cost of translation work would be charged to the manufacturer. Alternatively manufacturers may make their own arrangements for translations. Either way the intention would be to include the translation on the EMeTAS system, where it would be readily available to all subscribers. Manufacturers with translations are asked to contact NWML's Regulation Directorate about the procedure for inclusion. Such translations of certificates will continue to be available to authorised persons who may need them for inspection purposes and to EC verification approved bodies.
91. From time to time NWML receives enquiries from authorised persons about certificates issued by the other Member States. These enquiries usually relate to the availability of the certificates in question, translations into English and matters of clarification or explanation. Type-approval certificates issued by another approved body (referred to as a notified body under the Directive) should be on the EMeTAS system. Where NWML has received copies of certificates that are not on EMeTAS, NWML may assist authorised persons to obtain copies and may also be able to assist with translations. However, where authorised persons require clarification or explanations, these would need to be obtained from the issuing body, since NWML is not in a position to provide interpretations of other bodies' certificates. If authorised persons experience any difficulties in contacting the relevant body, NWML will be pleased to assist in this process.

### **11(4)**

92. Those carrying out testing should be aware that the definitions of 'absolute value', where used by EN 45501 and by the Weighing Equipment (Non-automatic Weighing Machine)

Regulations (2000/932) are not the same. Regulation 2000/932 defines 'absolute value' as the range of the limits of error from the maximum plus to maximum minus while the Vocabulary of Legal Metrology defines it as the modulus of the error (i.e. without the sign). Thus the 'absolute error' under 2000/932 is twice that of the 2000 NAWI Regulations for comparison and discrimination testing, whereas for repeatability testing it remains the same as the absolute value and is limited to half the error.

93. Here are specified the actions of the approved body in respect of an instrument submitted for EC verification. The actions apply to first verification, although the amendments introduced via paragraphs (6) and (7)(b) apply to subsequent re-verification.
94. The wording allows the approved body to sub-contract the examinations and tests. This can only be done within the limitations set by its conditions of designation under which it has approved body status. It should be noted that this contradicts EN17020. This is a standard that WELMEC recognises as a quality system for a notified body. This standard states that a notified body shall have sufficient permanent personnel.
95. The appropriate examinations and tests are those set out in the relevant harmonised standard - EN 45501 - or equivalent tests; see regulation 14(8). Annex 7 to these Notes provides detailed guidance on the testing of non-automatic weighing instruments in accordance with the standard, which is based upon Recommendation R 76 of the International Organisation of Legal Metrology (OIML).
96. Since the amendment of the Directive the CE marking Directive (93/68/EEC), it is the manufacturer or his authorised representative who places the CE marking on the instrument as a declaration of conformity with all relevant Directives. The approved body then ensures that the CE marking has been correctly affixed under regulation 19 (see Article 10 of Directive No 93/68/EEC, published in OJ L220 of 30.8.93).
97. Examples of conformity documents that the approved body would complete, such as the Certificate of Conformity and the Certificate of tests on the first stage, can be found in 'Directive 90/384/EEC: Common Application' by WELMEC 2 (Issue 3), dated June 2004 - see references to certificates B and C on page 65; or in: 'Non-automatic weighing instruments Guidance notes on UK Regulations (Third Edition)' (see Bibliography at Annex 4 for how to obtain).
98. It is the responsibility of the approved body to ensure that the certificate of conformity is provided to the manufacturer or his authorised representative, and it is required that the manufacturer will keep the certificate of conformity so that it is available for those who may in the future have a legitimate need to see it. There is not an offence if the certificate of conformity is not maintained.

## **11(5)**

99. Where EC verification is refused, the approved body is to give its decision and reasons in writing to the applicant. By the terms of its designation the approved body will have an appeal procedure which it will make known to the applicant together with information about judicial remedies - see below on regulation 22.

## **11(6) and (7)**

100. These paragraphs deal with instruments that have been verified and then been disqualified. Instruments may be disqualified by an authorised officer of an approved body if:
- a) It falls outside the relevant limits of error or otherwise does not fully comply with the requirements which apply to it.
  - b) It has been subject to any alteration or addition by which a requalification sticker could not be applied. The alteration or addition does not necessarily have to affect the accuracy.
  - c) It has been subject to any adjustment, alteration, addition/repair or replacement which could affect its accuracy.
  - d) For an instrument that is sensitive to gravity, if it has been verified in one gravity zone and is being used in another.
  - e) An instrument is being used for a purpose for which it is unsuitable, or it is operating in extraordinary environmental conditions which prevent it operating properly or degrade its metrological conditions.
101. Where an instrument has been disqualified, any person in the EU can apply to an approved body to have the instrument re-qualified. It is expected that this person will be the owner or a repairer of the instrument. This contrasts with initial verification where it must be either the manufacturer or his authorised representative in the EU. This regulation also does away with the obligation to supply documents as it unreasonable to expect the owner of an instrument to have a copy of the type-approval certificate.
102. In these circumstances the approved body, who may not be the body who carried out the first verification, may turn to that original body traceable by the identification number on the instrument or to NWML for any assistance which may be needed. Neither does the approved body have to issue a certificate of conformity in relation to the re-verification tests carried out on the instrument, since a certificate of conformity has been issued following the initial verification. After re-qualification the approved body shall affix a re-qualification sticker and the identification number of the approved body.

## **12 EC unit verification**

103. This is the procedure that applies to one-off installations of instruments. In a single procedure, the Secretary of State (NWML) will check that an instrument satisfies the requirements of the 2000 Regulations which apply to it, affix his identification number and provide a certificate of conformity. With this procedure no type approval is carried out, although the design and operation are fully evaluated.

## **12(1) and (2)**

104. As with EC verification, the manufacturer or his authorised representative are responsible

for ensuring that the manufacturing process will produce instruments that will comply with the 2000 Regulations. The manufacturer or his authorised representative may apply the CE marking and sticker to the instrument and draw up the declaration of conformity only when they are satisfied that the instrument meets the requirements of the 2000 Regulations.

### **12(3)**

105. This paragraph applies to first EC unit verification of an instrument, except where regulations 12(6) and (7) apply. Application is to be made to the Secretary of State (NWML) by the manufacturer or his authorised representative established in the Community for examinations and tests to be carried out on the instrument. The application is to be made on form NWML TE/02 and accompanied by the design documentation for the instrument - see Schedule 1. A fee will be payable for the testing and examination for EC unit verification in accordance with the fees Regulations described in Annex 5. Intending applicants may wish to avail themselves of NWML's consultancy service as a way of enlisting NWML's guidance in the preparation of the formal application; further details are contained in document NWML TE/03. Forms and documents are available from NWML's Type Approval and Testing Business Team.
106. For subsequent EC unit verification, e.g. re-verification after repair, see notes below under heading '12(6) and (7)'.

### **12(4)**

107. Following receipt of an application for EC unit verification, NWML will evaluate the design and carry out appropriate examinations and tests. In certain circumstances some of the tests may be sub-contracted out or additional resources hired in: it is likely that NWML will call upon the expertise of the local weights and measures authority in this respect. The appropriate examinations and tests are those set out in the relevant harmonised standard - EN 45501 - or equivalent tests; see regulation 14(8). NWML will affix/cause to be affixed its identification number to compliant instruments and provide a certificate (relating to tests carried out) for provision by the manufacturer/his authorised representative to those entitled to see it.

### **12(6) & (7)**

108. Whilst the earlier paragraphs of regulation 12 apply to first EC unit verification, the modifications introduced via paragraphs (6) and (7)(b) apply to subsequent EC unit verification. If NWML was not the body that carried out the original EC unit verification, NWML will, if it needs to, seek the design documentation from that body traceable by the identification number on the instrument.
109. Where EC unit verification is refused, the Secretary of State (NWML) is to give its decision and reasons in writing to the applicant, together with information about provision of information and judicial remedies - see regulation 22. NWML will consider representations: the procedure in such cases is described in the booklet "Type Examination at NWML" available from its Type Approval and Testing Business Team.

### **13 Quality system approval and EC declaration of type conformity**

110. This is the procedure, whereby a manufacturer with a certified quality system (which has been approved by an approved body) may take full responsibility for the conformity of instruments (self-verification) without the direct involvement of an approved body responsible for EC verification. This process has become known as self-verification. In this way the accredited manufacturer declares that instruments are in conformity with an approved type (i.e. pattern) and satisfy the requirements of the 2000 Regulations. A manufacturer who wishes to self-verify will be required to seek formal approval by an approved UKAS accredited certification body (ACB) of his quality system to the relevant requirements of Annex II of the Directive. Compliance of a self-verification system with ISO 9001-2000 is presumed to offer compliance with Annex II of the Directive. It must be stressed that the approval of the quality system does not have to be by an ACB in the UK. The approval can be given by any ACB in a Member State.
111. The approved body responsible for the assessment of the quality system is also responsible for EC surveillance of the system. The latter is to ensure that the manufacturer fulfils his obligations to maintain and apply the certified quality system. See regulation 15.
112. It is only the manufacturer that can seek approval of their quality system and make a declaration of type conformity. There is no definition of a manufacturer in the 2000 Regulations. The manufacturer or his authorised representative can affix the CE mark, the inscription, the sticker, the identification number of the approved body that approved the manufacturer's quality system and issue a declaration of type conformity (i.e. self verify). The effect of this is that, if a business is not a manufacturer, they cannot become self-verifiers in their own right, but only as an authorised representative of the manufacturer. We must look to other sources to help understand what a manufacturer may be. The Measuring Instruments Directive appears to offer a definition of manufacturer which may be of some use - as does the "blue guide".
113. It is possible for a manufacturer or his authorised representative, where an instrument has been subject to adjustment, alteration, addition, repair or replacement to re-qualify the instrument and apply the relevant stickers and identification number.

#### **13(1)**

114. Applications need to be made to an approved body. A list of approved bodies is included on the EMeTAS CD and covers the ACBs who have been designated under regulation 9(1)(b). This information is also available on the EMeTAS CD-ROM. The application has to be accompanied by an undertaking from the manufacturer covering the two areas in subparagraphs (a) and (b). The obligations referred to include the record keeping requirements in regulation 15(2).
115. The approved body will charge a fee for its quality system evaluation and EC surveillance. This is a matter between the applicant and the approved body.

#### **13(2)**

116. For quality system evaluation purposes the manufacturer has to make available to the approved body the documentation for the quality system and the design documentation of

the instruments for which the manufacturer wishes to make EC declaration of type conformity. The arrangements between the applicant and the approved body will determine the process needed to embrace new EC type-approval certificates, and additions to original EC type-approval certificates, obtained after the first grant of quality system approval.

117. There is nothing to stop a manufacturer using two different routes simultaneously for conformity assessment procedures. EC declaration of type conformity could be used for, say, his major production and EC verification for those instruments in less demand for which approval of the quality system would be uneconomic. Similarly, where verification is to be in two stages (see regulation 14), EC declaration could be employed for both stages, or only for the first with EC verification by an approved body for the second.

### **13(3)**

118. Paragraph 2.3.2 of Annex II of the Directive refers to "quality systems that implement the corresponding harmonised standard". The Commission has given its view that the harmonised standard in question is EN 29002. The relevant national standard mentioned in paragraph (3) is taken to be BS EN ISO 9002 (the title of which is: "Model for quality assurance in production, installation and servicing" - formerly BS 5750: Part 2). This standard was withdrawn from 9 March 2005.

### **13(4) and (5)**

119. With a successful outcome to the examination and evaluation of his quality system the manufacturer acquires the right to make EC declarations of type conformity of his instruments. The ACB informs NWML so that others concerned may also be notified (the latest list, which is sent out annually to WELMEC members, appears on NWML's website at [www.nwml.gov.uk](http://www.nwml.gov.uk)). See also paragraph 65 above, which is relevant.

### **13(6)**

120. Where a manufacturer fails to achieve the grant of approval of his quality system he will be able to appeal to higher authority within the ACB, if he so wishes. Each ACB must have an appeal procedure before it will be given approved body status. The manufacturer will be given information about this with the grounds for refusal of approval. The information will include reference about judicial remedies. See regulation 22.

### **13(7)**

121. This paragraph sets out the components of an EC declaration of type conformity of an instrument and states the action the manufacturer is to take to make visible that conformity by the affixing of the CE marking etc, and to confirm that conformity in writing. The manufacturer does not have his own identification number but uses that of the ACB which approved his quality system and is responsible for the ongoing task of EC surveillance of that system.
122. 13(7)(b) makes it clear that manufacturers do not need to examine and test each and every instrument in order to declare that they conform with the approved type, provided that the

ACB which approved the manufacturer's quality system has agreed that instruments may be statistically sampled for testing. ACBs will wish to draw up their own criteria for determining whether manufacturers should be permitted to carry out statistically sampled testing for the purpose of making the EC declaration of type conformity. Generally, for statistical sampled testing to be applied, instruments will need to be made identically, to the same type approval, to a homogenous production batch; records of batches of instruments manufactured together with the date of their manufacture and their serial numbers would need to be maintained by the manufacturer; and ACBs will wish to consider the need for the manufacturer to apply a recognised sampling procedure such as BS6001: Part I 'Specification for sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection' or BS6001: Part II 'Specification for sampling plans indexed by limiting quality (LQ) for isolated lot inspection'.

123. Regulation 13 is intended to cover both first self-verification and subsequent re-verification of instruments, provided that this comes within the scope of a manufacturer's approved quality system (i.e. his certified verification system). It is not possible to obtain certification solely for the purposes of re-verification. These two paragraphs set out the circumstances which may give rise to the need for re-verification and the need to affix the re-qualification sticker and the identification number, if different from the one(s) already on the instrument.
124. The ability of the manufacturer to self-verify permits him to verify instruments anywhere in the EU. However in the case of re-verification the manufacturer is limited to the UK unless he has gained separate authorisation from other Member States specifically for this purpose. Re-verification is a national activity which, in the UK, requires an additional re-qualification sticker.

## **EC Declaration of Type Conformity in the case of used instruments**

125. This paragraph addresses the question of issuing declarations of conformity in relation to re-supplied instruments. The Directive does not actually define what is meant by 'placing on the market' or 'putting into service' of instruments into the Community i.e. the point at which the requirements of the Directive apply. However the Commission has expressed the view that these terms, as used within Directives such as 90/384/EEC, apply only to new (or re-conditioned as new) products within the Community or to new, re-conditioned or second-hand instruments imported for the first time into the Community (Crown-stamped instruments used only for trial purposes would also be included). The 2000 Regulations should be taken to reflect this.
126. Where new instruments have been Crown stamped but have not yet been placed on the market, the stamp may be removed and replaced by the CE and metrology markings, provided that the requirements of the Directive are met. In the case of crown stamped instruments that have already been in use, if it is possible to re-condition them to the extent that they may in fact be considered to be a new instrument rather than a second-hand model, then it may be appropriate for the Crown stamp to be removed and for the CE marking and stickers to be applied; but the affixing of the stickers will only be appropriate where the instruments meet the current requirements of all relevant Directives. In cases in

which a second-hand instrument has only been slightly modified and updated, it would not be appropriate to apply the CE marking and stickers under the Directive (in this case the re-conditioned instrument may be granted variant approval under section 12 of the Weights and Measures Act 1985 and re-stamping with the Crown stamp would be the route to follow). Another possibility may be that a manufacturer's service engineers may be asked to replace the Crown stamp with a sticker as a part of their servicing role; but this is not something which the Regulations would permit, since the instruments in question have already been placed on the market and put into service, and as such are second hand products and outside the scope of the Regulations. In each case, the appropriate route to follow would need to be decided on the basis of the particular merits of the case of the instrument in question.

## **14 Provisions supplemental to regulations 11, 12 and 13**

### **14(1)**

127. Paragraph (1) states that EC verification, EC unit verification and EC declaration of type conformity ("the procedures") are to be carried out at the instrument's place of use. Exemptions to this are if the instrument does not have to be dismantled for transport, or any such dismantling is not likely to affect its purpose, or if before the instrument is taken into service no work is required which is likely to affect its performance. If either does apply, then the procedures may be carried out at the place of use or anywhere else. The paragraph's provisions are made subject to the special provisions on gravity-sensitive instruments in paragraph (2) and on voluntary two-stage procedures for non-gravity-sensitive instruments.
128. "Dismantling" is not defined in the Directive and as a consequence is not defined in the 2000 Regulations. It is taken to mean the following types of operation: the unplugging of external connection leads; the unbolting or unscrewing of headworks from bottomworks; the removal of load receptors. This list is not exhaustive.
129. In subparagraph (b) the exemption is included for instruments for which there is no further work likely to affect the instrument's performance. If the instrument requires final on site calibration the work must be carried out at the place of use.

### **14(2)**

130. This paragraph sets out the procedural requirements for gravity-sensitive instruments. If the functioning of the instrument is sensitive to gravity, any examinations or tests, the results of which are gravity-dependent, would either be carried out in the same gravity zone as the place of use, or the difference in gravity between the place of test and place of use would be taken into account during testing. See below under general verification matters (paragraph 36 to 143 below). In the second case - subparagraph (b) - two-stage procedures are used with the gravity-dependent examinations and tests being carried out at the second stage.

### **14(3)**

131. Paragraph (3) permits two-stage procedures, at the manufacturer's option, for non-gravity

sensitive instruments. The verification of gravity sensitive instruments is considered further in WELMEC Guide 2, Paragraph 3.3.2. See [www.welmec.org](http://www.welmec.org).

#### **14(4)**

132. This paragraph specifies, for two-stage procedures, which examinations and tests are to be carried out and the places at which they may be done.

#### **14(5) and (6)**

133. These are to make it clear that flexibility applies in applying the procedures. Under paragraph (5), where a manufacturer has started off down the EC declaration of type conformity route, after the first stage a swap may be made over to the EC verification route for the second stage, with what is to be done at each stage being regulated by paragraph (4). Similarly with paragraph (6): one approved body may do the first stage of the procedures and another the second stage, i.e. a change of bodies while pursuing the EC verification route.

#### **14(7)**

134. Where paragraphs (5) or (6) have applied, it is necessary for the first party to issue a certificate to indicate what he has done at the first stage. In the light of the information in that certificate the second party is enabled to properly carry out the examinations and tests for the second stage. With two different parties involved the instrument will accordingly bear the identification number of each of them: the number applied second should not be applied so as to obscure the first.

#### **14(8)**

135. Under regulation 14(8) the metrological tests to ensure conformity with the essential requirements, carried out in relation to EC verification or EC unit verification, are the tests for verification as detailed under 8.2.2 in EN 45501, or equivalent tests. These are tests for: errors of indication; accuracy of zero-setting and tare devices; repeatability; eccentric loading and discrimination. If equivalent tests are carried out, they must still meet the essential requirements of the directive. Annex 7 to these Notes provides detailed guidance on testing of non-automatic weighing instruments in accordance with R76, on which the standard is based. *It does not include changes as a result of Amendment 1 to R76.*

## **General verification matters**

### **(a) Gravity**

136. There are no gravity zones set up in the UK; instruments should be calibrated as appropriate for the place of use.

137. Gravity is greater at the poles than at the equator and decreases with increase in altitude. The effect of gravity at any given location can be calculated using the following formulae:-

$$g=9.806\ 32 - 0.025\ 86 \times \cos^2\theta + 0.000\ 03 \times \cos\ 4\theta \text{m/sec}^2 \text{ (latitude)}$$

$g = -0.000\ 002\ 93 \times h \text{ m/sec}^2$  (altitude where  $\varnothing$ =degrees latitude and  $h$ =height in metres above sea level).

138. The table at Annex 2 shows the effect of gravity in relation to change in latitude (north/south) and altitude (height) for the different classes of instrument. It is based on a simplified version of the formulae assuming a linear interpolation over the region 35°N to 60°N and would only cover the EU and EEA countries within that region. This is now incorrect for the extended EU.
139. For a Class III instrument having 3000 e verified in London and subsequently moved to Edinburgh an additional error in the performance of the instrument would result due to the increase in the value for gravity.

Latitude change London to Edinburgh is approximately equal to 485 km.

Error (assuming no change in altitude) is approximately equal to 1.1 e at maximum capacity.

140. The consequence of the change due to gravity is that the instrument will have used up more than a third of the positive error allowance in relation to the in service allowance.
141. The change due to gravity is proportional; therefore the error at 500 e would be approximately 0.18 e and at 2000 e approximately 0.74 e.
142. If the instrument already had a significant linearity or hysteresis error on initial verification then the instrument might be close to being outside the error allowance at the m.p.e change points i.e. 500 e and 2000 e, although still within the in-service allowance.
143. An instrument would be regarded as being sensitive to variations in gravity if, as a result of a change in location, a change of greater than the absolute value of the maximum permissible error (applicable on verification) occurred for any load applied. For such instruments, therefore, it will behove the manufacturer or other owner to keep records, probably with the instrument, to indicate the situation for which it has been verified. See also notes on 25(2) and (3) below, and see reference in bibliography (Annex 4) to OIML article.

## **(b) Re-verification**

144. Each of regulations 11, 12 and 13 makes provision for re-verification.

It should be noted that re-verification is a procedure caught by the UK and not EU law. It does not entitle the instrument to have access to the market of any other Member State. Similarly, instruments which have had a re-verification sticker applied in another Member State may not be brought into use in the UK.

## **(c) Conformity documentation**

145. For conformity documentation, refer to DTI's booklet 'Non-automatic weighing instruments Guidance Notes on UK Regulations (Third Edition)' in the Product standards series, dated

August 1996. This includes examples of conformity documentation, which may also be found on the WELMEC website at [www.welmec.org](http://www.welmec.org).

## **15 EC surveillance**

146. This regulation needs to be read together with regulation 13. It imposes ongoing obligations on the manufacturer. The ACB must carry out periodic surveillance of the manufacturer's approved quality system. It should be noted that "periodic" is not defined and there are different interpretations of "periodic" across the EU. A failure to meet the obligations of EC surveillance may constitute grounds for the withdrawal of approval of a quality system and consequently the withdrawal of the right of a manufacturer to make declarations of type conformity.
147. It also imposes the obligation of carrying out EC surveillance on the ACB. A failure to carry out EC surveillance may lead to loss of the ACB's approved body status.

## **16 Suspension of authority to make EC declaration of type conformity**

148. If an instrument does not meet the requirements of the regulations or the corresponding provisions of the law of another Member State, an authorised person may suspend the right of a manufacturer to make EC declarations of type conformity for a period of up to 28 days. There is a right of appeal in accordance with regulation 20. In issuing a suspension the following should be noted:.. Suspensions can be made as a result of finding a non-conforming instrument on any premises; the notice can be issued to the manufacturer's authorised representative; the suspension may relate to a particular geographical area (e.g. just one of the manufacturer's sites); the regulation lists information that must be provided to the recipient of the notice. Where the recipient of the notice has rectified the situation, application can be made for early removal of the notice.

## **17 Withdrawal of approval of quality system**

149. The regulation specifies the four circumstances which may give rise to withdrawal by the ACB of the approval of the manufacturer's quality system.
150. The manufacturer must be given the opportunity of making representations before the final decision to withdraw approval is made.
151. Where the manufacturer who has the approval of his quality system withdrawn is located in the UK, NWML will also make arrangements to inform the local weights and measures authority in that location.
152. The effect of the withdrawal of the approval of the quality system will be the manufacturer or his authorised representative cannot make declarations of type conformity, and consequently cannot "self-verify" instruments.

## **18 Affixing of CE marking etc**

153. All instruments, which have been subject to EC conformity procedures, whether under these Regulations or other Directives, will bear the CE marking. Where there is third party

intervention at the production stage the identification number will be of the appropriate approved body.

154. For instruments subject to these Regulations which are to be used for a Schedule 3 application, it will be the identification number of the approved body responsible for EC verification or EC surveillance. In the case of unit verification, it will be the identification number of the Secretary of State.
155. Additionally the green "M" sticker signifies that the instruments may be used for one of the Schedule 3 applications. The green, "M" sticker is a supplementary metrology mark, which has the effect of specifically indicating that the instrument is in compliance with the essential requirements under the NAWI Directive. This should be distinguished from the CE mark which indicates compliance with all relevant Directives including the NAWI Directive. The green "M" sticker has the same status as the CE marking in the UK and must not be removed from the instrument.
156. Instruments not for use for one or other of the Schedule 3 applications - see regulation 6 - may carry the CE marking as a result of meeting the EC conformity procedures from another Directive as opposed to the NAWI Directive. Such instruments would not be required to carry a green "M" sticker.

#### **18(1)**

157. CE mark, sticker, inscription, and identification number are defined either in regulation 2(1) or later in regulation 18. It is specified that these items be affixed either somewhere on the instrument or on a data plate which meets the specified conditions. It is suggested that the control mark mentioned in Regulation 18(1)(b)(ii) is a mark which the manufacturer uses to deter and detect any tampering with the plate, since the unscrupulous may see advantage in moving the plate to another instrument. This control mark must not be either the prescribed Crown stamp (SI 1968/1615) or the mark of EEC initial verification (SI 1988/186), though if the manufacturer has made no other provision it may be the date hexagon part of the latter.

#### **18(2)-(4)**

158. These paragraphs specify the particular requirements for each of the items (visibility etc, nature and placing of markings).

The CE mark, identification number, sticker or inscription must be clearly visible, easily legible and indelible. "Clearly visible" is not defined in the Regulations. The Commission has given its informal opinion in relation to the CE marking (including green metrology sticker) and general inscriptions that 'clearly visible when the instrument is in its regular operation position' may be taken to mean that they are readily accessible to the market surveillance authorities (and inspection authorities) and can in exceptional circumstances be accessible although not permanently visible. In other cases it is taken to mean visible to the operator when the instrument is in its regular operating position, accepting with a two-sided instrument that the vendor as operator will see the markings and not the customer.

159. If an instrument apparently fails to comply with the Regulations, in that there is no obvious and adequate space to place the verification and disqualification/re-qualification stickers, or the intended location does not appear to comply with the requirements of paragraphs (2) to (4) of regulation 8 (Article 10 and Annex IV of the Directive), it is suggested that the matter is referred via the Home Authority for the company (the local weights and measures authority within whose area the company is based) who applied for the certificate of Type-Approval (or their representative in the UK) or to the approved body which carried out type-approval. This will ensure uniformity of approach.
160. Unless specified otherwise in the Type-Approval Certificate, the green "M" sticker should be affixed adjacent to the other stickers wherever possible. In the case of modular equipment, there should be only one set of stickers, and it is suggested that the stickers should be placed on the principal weighing instrument.
161. It should be noted that the WELMEC Document "Directive 90/384/EEC: Explanation and Interpretation" (WELMEC 3.1, June 1994) recommends (Section 3) that in the case of instruments which are made up of more than one device to which the essential requirements apply, the green "M" sticker is applied to each device, although the CE marking is applied to the main part of the instrument only. The basis of this guidance is not clear, but may be seen, as a corollary to the requirement in Article 12 of the Directive that the red restrictive use 'M' symbol must be attached to each device that has not been subject to conformity assessment. It is particularly recommended that the manufacturer places an additional "M" sticker on the control unit where the weighing system includes a computer as part of the Schedule 3 application - e.g. an EPoS terminal. However, with regard to the legal requirements of the Regulations, the manufacturer is only required to affix a single "M" sticker. This is sufficient both for simple weighing instruments and for more complex weighing systems made up of peripheral devices or modules.
162. All modules and peripheral devices attached to the weighing instrument must be covered by the type-approval certificate or by a test certificate which is referred to by the type-approval certificate. Where the reference within the type approval certificate is to test certificates in general, it is important to establish that the actual test certificate for the module or peripheral device in question refers to the particular type of non-automatic weighing instrument to which it is connected. Where the type approval certificate covers a variety of modules and/or allows the construction of a series of weighing instruments with different maximum capacities and/or measuring ranges it is necessary for the manufacturer to demonstrate before initial verification that the incorporated modules are compatible to each other and to the weighing instrument. This can be done via a compatibility of modules statement. The relevant quantities and characteristics identified which together establish the compatibility have been included on forms which may be found at section 11 of the WELMEC 2 guide entitled 'Directive 90/384/EEC: Common Application'. These forms allow for an easy decision to be taken as to whether or not the necessary conditions are satisfied, and manufacturers may check and prove compatibility of modules by completing them. It is intended that the forms should be attached to the formal Declaration of Conformity or by other means held ready to be presented to a Notified Body responsible for initial verification or subsequent metrological control. They should also accompany an application for EC type examination or EC unit verification as part of the supporting documentation.

163. There may be concerns regarding the exchange of peripheral devices which bear the green 'M' sticker, but which may subsequently be installed in configurations in which they have not been assessed. It is therefore recommended that the serial numbers of peripheral devices are recorded (whether or not they bear the green "M" sticker) either at the time of EC verification or on the first inspection so that the configuration is subsequently identifiable. This will enable any alterations to the equipment to be detected. In the interest of uniformity, authorised verification officers are recommended to follow the WELMEC guidance. LACORS participates in WELMEC and referrals may, therefore, be made to LACORS for consideration by WELMEC or Member State representatives.

#### **18(5)**

164. This defines the CE marking as the letters "CE". The last two digits of the year of affixing are no longer required as part of the CE marking (although it may be required by other relevant directives). However they are required as part of the general inscriptions listed under 1.1 (a) of Annex IV to the Directive and should be applied by the manufacturer.

#### **18(6)**

165. This covers situations in which the load measuring device of an instrument can be connected to one or more load receptors.

#### **18(7)**

166. Where an instrument for a Schedule 3 application has attached to it devices exempt from satisfying the essential requirements, each of those devices is to bear the restrictive use symbol - a capital letter 'M' printed in black on a red background at least 25 mm x 25 mm square with two intersecting diagonals forming a cross. Note that the colour of the diagonals is not specified in the Regulations.

167. These symbols have to be applied to all devices that are connected to or included as part of an instrument bearing the CE marking, but which have not themselves been subject to conformity assessment procedures. Such devices cannot be used for any of the Schedule 3 purposes, with the exception of supplementary indicating or printing devices used with equipment which is not used for direct sales to the public, and which only repeat the weighing result and cannot influence the correct operation of the instrument. The weighing result must be printed or recorded correctly and indelibly by a part which does meet the essential requirements, and be accessible to both parties concerned with the measurement.

#### **18(9)**

168. When a re-qualification sticker is applied it shall be clearly visible when in its regular operating position, and obliterate as far as possible any obliteration sticker.

### **19 Conformity with other Directives**

#### **19(1)**

169. The manufacturer is responsible for ensuring, under all verification options, that the

instrument meets not only the requirements of the Directive as implemented but the requirements of all other relevant directives. A sample Declaration of Conformity form can be found on WELMEC's website and is included in the WELMEC publication 'Directive 90/384/EEC: Common Application', WELMEC 2 (Issue 4) dated June 2004. The form requires the manufacturer to list all other relevant Directives.

170. Other Directives which may be relevant are:

- 89/336/EEC (amended by 91/263/EEC and 92/31/EEC) on electro-magnetic compatibility, as implemented by The Electromagnetic Compatibility Regulations 1992 (as amended);
- 89/392/EEC (amended by 91/368/EEC, 93/44/EEC and 93/68/EEC) on machinery safety (for some but not all industrial products), as implemented by the Supply of Machinery (Safety) Regulations 1992 (as amended); and
- 73/23/EEC (amended by 93/68/EEC) on low voltage, as implemented by the Electrical Equipment (Safety) Regulations 1994.

This is not necessarily an exhaustive list.

## **19(2)**

171. Manufacturers are advised that different Directives may have different transitional provisions. If a manufacturer makes an instrument for export to another EEA Member State and is seeking to rely on a transitional exemption, the instrument will undoubtedly be expected to comply with the various relevant national requirements in the countries of importation as at the date of adoption of the relevant Directive. In order to avoid the difficulties that this may present, it would be preferable for the instrument to comply with all relevant requirements in all applicable Directives. Where, as a result of a transitional exemption, the manufacturer decides not to apply a provision, the documentation accompanying the instrument must record this.

## **20 Review of decisions of authorised persons under Part II**

172. This regulation sets out the procedure for a review of a decision by an authorised person. Other parts of these Notes refer to other appeals or procedures for the making of representations.

## **20(1)**

173. The decisions to which this regulation applies are:

- suspension of the right to make EC declaration of type conformity, under regulation 16; or
- the serving of a notice in relation to a wrongly affixed CE marking, under regulation 26.

The Secretary of State may hold an inquiry on the decision which is the subject of the complaint of the aggrieved person, and may appoint an assessor to assist either with the review or the inquiry.

#### **20(2)-(3)**

174. Paragraph (2) sets a time limit of 21 days for the aggrieved person to send in his application for review. It should be addressed to the Chief Executive at NWML, Stanton Avenue, Teddington, Middlesex, TW11 0JZ. The grounds on which the application is made must be specified; it is insufficient merely to ask for the authorised person's decision to be reviewed.

#### **20(4)**

175. The aggrieved person and the authorised person are to be informed of the outcome of the review within a reasonable time. There may be two outcomes: if the decision of the authorised person is upheld, the grounds for the decision must be stated. If the decision of the authorised person is not upheld, the notice originally issued may have to be withdrawn.

### **21 Provision of information**

176. Any person aggrieved by the decision of the Secretary of State, or of an approved body shall, as well as being notified of the decision, be given information about the judicial remedies available.

### **22 Unauthorised application of CE marking etc**

177. This provision is similar to section 16 of the Weights and Measures Act 1985 and creates offences for the misuse of the various symbols and stickers etc.

#### **22(2)**

178. Any persons who are bona fide manufacturers or frequent repairers, or are the authorised agents of manufacturers or frequent repairers, will be exempt from the offence provisions in this regulation if the sticker, mark or inscription is altered, removed or defaced in the process of a repair or adjustment of an instrument. This assumes the alteration, defacement or removal does not amount to forging or counterfeiting.

#### **22(4)**

179. This section is limited to any tool or suchlike used for the removal of a marking or its affixing to another instrument, or used in the forgery or counterfeiting of markings. It does not cover test equipment used by a manufacturer to test instruments.

#### **22(5)**

180. Paragraph (5) covers the situation where the original symbols or stickers etc had been affixed in another Member State. This ensures that the removal of an identification number affixed in another Member State is an offence in the UK.

## **23 Disqualification stickers (instruments not complying with these Regulations etc)**

181. The provisions of regulation 24 allow an authorised person to affix a disqualification sticker (a red six pointed star design superimposed on a grey crown) to an instrument which is outside the in-service limits of error or does not meet any other requirements of the Regulations applicable to the instrument. The disqualification sticker must be affixed so that it is clearly visible when the instrument is in its operating position. As the same requirement applies to the application of the original verification stickers, it is felt that any disqualification sticker should be applied adjacent to the original verification stickers.
182. Where the non-compliance is such that immediate application of the disqualification sticker is considered unnecessary, then a notice of up to 28 days can be given by the authorised person for the non-compliance to be put right. As in Regulations under the Weights and Measures Act 1985, no provision for appeal against such a notice is included. If the notice is not complied with a disqualification sticker will be affixed.

## **24 Disqualification stickers and re-qualification stickers (instruments which have been altered etc)**

183. The provisions of regulation 24 cover physical changes to the instrument and changes to the location of an instrument since the green sticker was affixed. The effects of changes of location would only need to be considered in relation to those instruments whose performance is sensitive to gravity.
184. It should be noted that paragraph (3) actually provides discretion for the authorised person in deciding whether or not to affix the disqualification sticker where the chief inspector of weights and measures has been informed of the changes.
185. Paragraphs (2) and (3) cover various occurrences which could have affected the accuracy or function of an instrument. Paragraph (2) and (3) must be contrasted with the obligations of 24(1). An authorised officer may affix a disqualification sticker to an instrument although the accuracy of the instrument has not been affected. Under paragraphs (2) and (3) the accuracy of the instrument must have been affected. If notification of such an occurrence has not been supplied to the local chief inspector, application of the disqualification sticker is obligatory. Although the decision as to what may affect the accuracy or function of the instrument lies with the authorised person; it is felt that the use of components, e.g. transducers (load cells) or analogue electronics, in carrying out repairs might reasonably be regarded as affecting the accuracy or function, the correct use of other components e.g. digital electronics, displays should not do so. References to components may be found in the published particulars for the instrument type.
186. Under regulation 14(2) reference is also made to a change in location for instruments whose performance is sensitive to differences in gravity in relation to the affixing of the disqualification sticker. An instrument may move more than once: an instrument verified for London, used there and then moved to Edinburgh may still be within tolerances at the latter location. A second move, to Aberdeen, may put the instrument outside of the tolerances. Where an instrument is sensitive to differences in gravity the user will therefore need to know where it was verified.

## **25 Immediate enforcement action**

187. This regulation may be required when instruments that do not meet the requirements of the Directive have been installed, and are about to be used or are already in use. Such immediate steps to withdraw an instrument would be particularly appropriate when an instrument is discovered to have significant errors, or where the potential for fraudulent use exists. If the authorised person is of the opinion that the case for immediate enforcement action arises as a consequence of a defect in the EC type-approval certificate, it may be advisable to check with the body which issued the certificate before taking the immediate enforcement action.
188. In addition to the information that the notice was required to give in the past, the notice must now also give the date on which it is to take effect, specify the respects in which the instruments do not comply with the Regulations, the grounds for the decision, and must inform the manufacturer of his right to apply for a review of the decision under regulation 21. The notice may also now not only prohibit or restrict the use of such instruments, but also prohibit or restrict the supply, or offering for supply, of such instruments. It may also now indicate to the manufacturer (or his authorised representative) that non-compliance may result in their type-approval certificate, or quality system approval, being withdrawn. A copy of the notice is sent to the Secretary of State.
189. There is no provision in the 2000 Regulations for the notice to be copied to any person (i.e. every person) upon whom it imposes an obligation, and there is no provision for the notice to be published; which the Secretary of State could previously choose to do. Provisions are now made in relation to the withdrawal of a Type-Approval Certificate by the Secretary of State, and the Secretary of State may now publish details of a notice withdrawing a Certificate. New provisions are also made for the Secretary of State to inform the relevant approved body (or the relevant authority in another Member State) if it is considered that, approval of the manufacturer's quality system should be withdrawn.
190. Regulation 24 gives powers to an authorised person to affix a disqualification sticker on instruments which do not meet the requirements of the Regulations. Failure of a single instrument to meet the requirements of the Regulations would be unlikely to lead to any further action, but consistent problems with a particular model or type would, following consultation with the local weights and measures authority, lead to action by NWML under regulation 26 such that the EC type approval certificate might be withdrawn.

## **26A Compliance notice procedures**

191. This regulation relates to instruments that an authorised person has reasonable grounds for suspecting that a CE mark may have been wrongly applied. The instrument does not have to be being used for a schedule 3 application for this regulation to have effect.
192. Before a compliance notice is issued, any person with an interest in the instrument in question is first given the opportunity to make representations. If these are not satisfactory, a notice is issued to the manufacturer or his authorised representative (and must also be given to any person named within it, if it places them under an obligation), which specifies the period of time within which the recipient is required to end the infringement. Following this, no further action is taken by the authorised person until the notice has expired.

193. The regulation contains more detailed provisions than old regulation 20 relating to the information that the notice must contain, and it is intended that the notice should be more informative. The notice must sufficiently describe the instruments to which it applies, describe how the instrument contravenes the Regulations, and warn the recipient that further action may be taken if the infringement is not ended. The notice may also give directions as to how conformity may be secured, specify who is being placed under an obligation, and may be varied or withdrawn by a further notice. If the infringement is not ended during the notice period, the authorised person can then move on to instigate immediate enforcement action under regulation 26.

## **27 Unsuitable use of instrument used for trade**

194. If the environmental or operating conditions deteriorate after the instrument has been put into service for use for trade, an authorised person may affix the disqualification sticker to any instrument, the performance of which is not consistently satisfactory when it is being used in circumstances where it is subjected to such influences as, for example:

- a) repeated loading of any load receptor for purposes other than weighing;
- b) vibration;
- c) an unstable supply of electricity;
- d) electrical interference;
- e) electromagnetic radiation; or
- f) severe winds or other climatic effects.

195. The disqualification sticker must be placed such that it is clearly visible when the instrument is being operated.

196. It is important to note that Regulation 27 and all of Part III of the 2000 Regulations relate to instruments in use for trade. This definition can be found in section 7 of the Weights and Measures Act, and is a much narrower definition than that found in Schedule 3 of the regulations. The effect of this is that Part III of the 2000 Regulations do not apply to all instruments that bear a green M and have either been initially verified under Regulation 11, or been subject to a declaration of type conformity under regulation 13.

## **Part III Use for trade of non-automatic weighing instruments**

197. Part III of the Regulations is intended to ensure that, where applicable, instruments in use for trade are properly installed, and that the instruments should be used with due care and attention and under the best possible operating conditions. As considered in paragraph 216, the narrow definition of "in use for trade" means that many of the instruments that may be caught by Schedule 3 are not caught by part 3 of the 2000 Regulations.

198. Regulations 28 to 37 deal with the purpose and manner of use of instruments. These cover, inter alia, use within the weighing range, restrictions on use of the various instrument classes, prohibition on multiple weighing, compliance with specified markings, requirement for the load to be stationary on the load receptor, compliance with specified requirements on the operation of the instrument, types of weights to be used with certain instruments and restrictions on instruments giving weight indications in decimal parts of a pound.
199. Since Part 3 of the 2000 Regulations is made under powers contained in the Weights and Measures Act 1985, in this Part it applies only in Great Britain. Breach of the requirements in this Part could constitute an offence under section 15(3)\* of the Weights and Measures Act 1985. Separate but parallel provisions apply in Northern Ireland by virtue of the Non-automatic Weighing Instruments (Use for Trade) Regulations (Northern Ireland) 2001, S.R. 2001 No. 202, breach of which could similarly constitute an offence under the 1981 Order. Other Member States may impose similar conditions, completely different conditions or no such conditions. Enquiries about these should be made directly with the authorities in the States concerned, although some information is in fact given in WELMEC 5.1 - the Directory of Legal Metrology, hard-copies of which are available from LACORS, and which are also reproduced on the WELMEC website at [www.welmec.org](http://www.welmec.org).
200. References in square brackets in the following paragraphs are to the corresponding regulations in the Northern Ireland Regulations.

## **28 Restrictions on use of instruments for trade**

### **28(1) [4(2)]**

201. This paragraph allows an instrument to be used to weigh goods which are in effect below the amount of the approved minimum load. An example of this would be a loaded lorry that is weighed both before and after some goods are removed. The weight of the goods removed is the difference between the two weighings, i.e. gross weighing A minus gross weighing B. This is lawful, even if the weight of those goods is less than the amount of the approved minimum load. In certain circumstances such use may be to establish very small quantities for which there could be a large relative error. If an instrument was persistently used in this way, it could constitute an unsuitable use of the instrument, in which case an authorised person may conclude he should affix a disqualification sticker under regulation 27(a) (A). These circumstances should be distinguished from those where taring is involved. After taring, the instrument is again at zero, and the addition of goods to it is not used for "ascertaining the difference between two weights".

### **28(2) and (3)**

202. Paragraph (2) provides that where the weighing of certain precious items or drugs are concerned, weights determined must be within the weighing range of the instrument involved. Paragraph (3) restricts the weighing of certain high-value items, such as gold, silver and other precious metals, precious stones and jewellery to Class I or Class II instruments.

### **28(4)**

203. The requirements that no instrument shall be used for trade for a purpose which is not in

accordance with any designated purpose means that the instrument shall in such cases be marked with a restriction on usage. Examples of restrictions might be:

- a) "Not to be used for weighing in the presence of the purchaser";
- b) "For factory use only";
- c) "For customer use only";
- d) "For determining post tariffs only";
- e) "For management purposes only";
- f) "Not to be used for direct trade with the public";
- g) "To be used exclusively for ....";
- h) "To be used exclusively as .....".

### **28(5) and 28(7)**

204. Class III instruments may be used for trade only for the purposes of weighing of ballast, for weighing material for landfill disposal and for the weighing of other waste materials. "Ballast" is defined in paragraph 1\* of Schedule 4 to the Weights and Measures Act 1985. It should be noted that any other use for trade of a Class III machine may be a prosecutable offence under section 15(3)\* of the 1985 Act. Regulation 28(7) provides for definitions of waste.

### **28(6)**

205. Multiple weighing can give rise to inaccurate weighing results, either deliberately or inadvertently. The term 'multiple weighing' as used in this provision means the weighing of a load that cannot fit onto the load receptor all at once, and so is weighed in stages - e.g. the front axle of a lorry is weighed and then the rear axle is weighed and a calculation of the lorry's total weight is made based on these two results. Because such an operation cannot be relied upon to produce accurate results, multiple weighing is prohibited.

### **29 [5] Manner of erection of instruments**

206. An instrument which could be inaccurate when out of level will be required to be fitted with one or more level-indicating devices. The user should have regard to this factor in setting up and operating the instrument.

### **30 [6] Instruments marked with temperature range**

207. Instruments operated outside their temperature range can give inaccurate results. The normal temperature range for an instrument is from -10 °C to +40 °C - see 7.2 in Schedule 2 - and does not need to be marked on the instrument. However, any other range does need to be shown.

### **31 [7] Instruments marked with manner of use**

208. The requirement that no machine shall be used in a manner which is not in accordance with any stated method of operation means that the equipment must, in such cases, be marked with the relevant instructions, for example:

- a) "For use only with ....";
- b) "Twist to obtain correct reading";
- c) "Check zero frequently".

### **32 [8] Instruments fitted with printing devices**

209. This regulation repeats, in part, the requirement in Schedule 2, paragraph 10 but it must be remembered that it only applies to instruments in use for trade. EN 45501 states that the printed characters must be at least 2 mm high with the name or symbol of the unit of measurement either to the right of the value or above the column of values.

### **33(1) [9(1)] Load receptors**

210. The requirement that, during a weighing operation, the load is stationary relative to, and supported only by, the load receptor. This is especially crucial in the case of a large platform machine or weighbridge installed in a pit where the surrounds are flush with the load receptor. Instruments for use with suspended loads, e.g. carcass weighing, will be tested during type examination for any effect of movement of the load; this will also be considered in livestock weighing where it is also the custom of the trade to round the reading obtained down to a convenient value, e.g. the nearest 5 kg for cattle.

### **33(2) [9(2)]**

211. This reproduces the effect of what has previously been applied by conditional pattern approval under the Weights and Measures Act 1985.

### **34 [10] Operation of instrument**

212. The provision of facilities such as closed-circuit television has for some time been a requirement for approval for remotely controlled weighbridges; the use of mirrors has also been permitted for locally manned sites. Both these systems imply the provision of adequate lighting.

### **35 [11] Weights marked with EEC initial verification marks to be used**

213. Any class I or class II instruments that are used in conjunction with weight or weights to determine the value of any load shall use weights in accordance with this regulation.

### **36 [12] Instruments using decimal parts of pound**

214. No person shall use for trade any instruments that have scale interval expressed in imperial units, unless these units are supplementary indications. Supplementary indications will not be allowed after 31/12/2009.

## **37 [13] Instruments to be set to zero or to be balanced before use**

215. It is recommended that the EC type-approval certificate should be consulted to establish the method by which the instrument is to be correctly set to zero or balanced within the errors allowed.

## **Part IV General**

### **38 Powers of inspection and entry**

#### **38(1)**

216. These powers of inspection and entry only apply to the area for which the authorised person has been appointed, unlike the right of an approved body to operate anywhere. They are modelled on similar powers in the Weights and Measures Act 1985. However the powers extend to the inspection of documents, both those relating to an instrument and to any relevant quality system which has been established in order that the manufacturer may make EC declarations of type conformity.

#### **38(2)**

217. This paragraph deals with the authorised person's right of seizure of instruments and documents etc.

#### **38(3) and (4)**

218. These paragraphs cover the circumstances under which an authorised person may obtain a warrant from a justice of the peace or a sheriff.

#### **38(5) and (6)**

219. Whether having entered premises by warrant or otherwise the authorised person must make sure that on leaving them:
- in the case of unoccupied premises they are secured against trespassers; and
  - he does not disclose any trade secret or secret manufacturing process, unless required in the performance of his duty.

#### **38(7)**

220. The stopping of a vehicle on the highway is a police function. If the authorised person considers this to be necessary, he will have to seek the assistance of the local police.

#### **38(8)**

221. This paragraph defines "credentials" for the purposes of this regulation.

### **39 Obstruction of authorised persons etc**

222. It may be that a person will obstruct an authorised person carrying out functions under these Regulations perhaps by physically barring access to premises so as to deter or at least delay the authorised person. In line with the Weights and Measures Act 1985 this regulation makes such wilful obstruction an offence. It deals similarly with failure to give an authorised person reasonable assistance or information without reasonable cause, or giving information known to be false.
223. Paragraph (3) exempts a person from answering questions or providing information if to do so might incriminate him.

### **40 Offences and penalties**

224. This regulation sets out the amount of the fines for those found guilty of offences under the Regulations. All offences, except for that under regulation 4(3)(b), attract a fine not exceeding level 5 (at present £5000). The lower amount of level 1 (at present £200) applies to the supply of instruments, otherwise than for a Schedule 3 application, which do not comply with the marking requirements of regulation 6.
225. Note that failure to comply with any of the provisions of Part III of the Regulations is dealt with by the Weights and Measures Act 1985, sections 15(3)\* and 84, and the corresponding provisions in the Weights and Measures (Northern Ireland) Order 1981 for failure to comply with the Non-automatic Weighing Instruments (EEC Requirements) (Use for Trade) Regulations (Northern Ireland) 2001. Any offence in relation to any other part of the 2000 Regulations is an offence under the 2000 Regulations and not under the Weights and Measures Act 1985.
226. Paragraph (2) allows for the prosecution of someone whose act or default led to an offence being committed by a different person, whether or not that different person is also prosecuted.

### **41 Offences by corporations**

227. This regulation provides that, where a corporate body is found guilty of an offence, the relevant persons in a managerial capacity in that body who consented to or connived at the offence or who were guilty of some neglect, shall also be deemed guilty of the offence and may be fined.

### **42 Prosecutions**

228. In Scotland prosecutions can only be brought by procurators fiscal. However, in England and Wales, without express restriction any member of the public would be able to bring a prosecution, and, therefore, in line with section 83 of the Weights and Measures Act 1985 prosecutions in England and Wales are restricted to local weights and measures authorities and chief officers of police.

### **43 Adaptations for Northern Ireland**

229. In general Northern Ireland has its own weights and measures legislation. Implementation

of the Directive into UK law has, therefore, had to look not only at the situation in Great Britain (England, Scotland and Wales) but also that in Northern Ireland.

230. Schedule 5 makes the necessary changes in these Regulations so that they can be read in a Northern Ireland context. The most significant points are that:
- a) In Northern Ireland weights and measures enforcement is carried out by the Department of Enterprise, Trade and Investment and not local weights and measures authorities which do not exist there; and
  - b) Part III of these Regulations does not apply to Northern Ireland, but see above under the heading 'Implementation of the Directive' and the introduction to Part III in these Notes.

# Schedules

## Schedule 1

231. This Schedule reproduces Annex III on design documentation from the Directive.

## Schedule 2

232. This Schedule reproduces Annex I on essential requirements from the Directive.

### Schedule 2 Preliminary observation

233. This observation exempts certain indicating or printing devices from compliance with the essential requirements. However for those instruments involved in direct sales to the public, the exemption does not apply. Where the exemption does apply, then the restrictive use symbol – (the Red M) - as the devices are not subject to any testing. However, for those instruments involved in direct sales to the public, the exemption does not apply.

### Schedule 2 paragraph 1

#### Units of Mass

234. The units of mass for instruments are declared to be those which meet the Units of Measurement Directive, 80/181/EEC. The following paragraphs are based on the assumption that 80/181/EEC is amended by 89/617/EEC (although Directive 90/384/EEC does not mention this).

235. Domestic scales (e.g. bathroom scales) are not used in any of the circumstances specified in Directive 80/181/EEC (economic, public health, public safety and administrative purposes) or in any Schedule 3 purpose (since they are not manufactured to meet the essential requirements of the Directive). It would follow that they can be made to use any imperial units without time limit.

236. Person weighers which are used for one or other Schedule 3 purpose and which purportedly comply with these regulations must use metric units. Supplementary imperial indications may be used until 31/12/2009.

237. For transactions in precious metals, the troy ounce is permitted.

### Schedule 2 paragraph 2

#### Accuracy Classes

238. The following is an example of the use of Table 1 in Schedule 2 to establish the highest class, minimum capacity etc for a 15kg, self-indicating instrument, with a scale interval of 5g (note that "d" is the actual scale interval and "e" is the verification scale interval):

Step 1 - determine the number of verification scale intervals. i.e. 3000 divisions.

Step 2 - Look at table in relation to 1 above.

$n=3000$  is satisfied for Class II (first part), III (both parts)

$e=5$  g is satisfied for Class I, II (second part) and III (second part)

Both  $n=3000$  and  $e=5.0$  g are satisfied for Class III (second part).

## Schedule 2 paragraph 4

### Accuracy

239. The limits of error increase from  $+ 0.5 e$  over the first part of the range of the instrument to  $+ 1.5 e$  over the third part in relation to initial verification; each part of the range is defined in terms of the number of verification scale intervals which varies according to the accuracy classification of the instrument. ("e" is one verification scale interval).
240. The application of the verification scale interval to the instrument in question is exactly the same for instruments with an analogue or digital indication.
241. EN 45501 allows  $0.25e$  deviation at zero load. This is not calculated at zero, but normally at  $10e$  to disable the zero tracking.

## Schedule 3

242. This Schedule reproduces Article 1.2(a) from the Directive, listing the applications for which conformity with the essential requirements is mandatory.
243. The Commission has given its informal opinion that, in connection with
- 2, this should not apply to instruments which are used as private postal scales either by persons or business; rather it was intended to catch those instruments where the carrier e.g. post office, is responsible for the determination of mass for the calculation of the tariff;
  - 3, this should not apply to instruments which are used regularly by those who have training in metrology; rather it was intended to catch instruments used occasionally as an incidental part of their work by non-experts;
  - 6, the reference to pre-packages was supposed to be a reference to catchweight items and not all pre-packages.
244. The following are examples of categories of instrument which are not considered to be covered (this is not an exhaustive list):
- person weighing machines, other than those within 4;
  - weigh price labellers, which are automatic catchweighers.

245. The following are examples of categories of instrument which are considered to be covered (this is not an exhaustive list):
- weighbridges within ports, if they are available to weigh lorries to be loaded onto ferries for the purposes of satisfying the Merchant Shipping (Weighing of Goods Vehicles and other Cargo) Regulations - these are instruments within 3.

## Schedule 4

246. This Schedule illustrates the letters "CE", forming the CE marking and specifies their proportions.

## Schedule 5

247. This Schedule lists the adaptations to the Regulations so that they can be read in a Northern Ireland context.

### Further guidance and advice

248. Manufacturers can seek further advice from NWML or from their Home Authority. Their home authority will be the local Trading Standards Department where the company is based.
249. Local Weights and Measures authorities can gain further advice from NWML.
250. Those requiring advice in relation to existing type-approvals should contact the body which granted the approval.
251. WELMEC is another source of advice. WELMEC was initially established in 1990. Its objectives include improving confidence between legal metrology services within Europe and achieving greater harmonisation and consistency in legal metrology. The working Groups of WELMEC focus on creating greater mutual understanding on particular aspects of legal metrology, and have produced the following guidance:
- 'Directive 90/384/EEC: Common Application', WELMEC 2 (Issue 4) dated June 2004.
  - 'Guide for Testing Indicators', WELMEC 2.1 (Issue 4), dated August 2001.
  - 'Guide for Testing Point of Sale (POS) Devices (Non-automatic Weighing Machines)', WELMEC 2.2 (Issue 2), dated June 1997.
  - 'Guide for Examining Software (Non-automatic Weighing Machines)' WELMEC 2.3 (Issue 3), dated May 2005.
  - 'Guide for Load Cells', WELMEC 2.4 (Issue 2), dated August 2001.
  - 'Guide for Modular Approach and Testing of PCs and other Digital Peripheral Devices (Non-automatic Weighing Instruments)' WELMEC 2.5 (Issue 2), dated September 2000.

- Guide for the testing of automatic catchweighing instruments, WELMEC 2.6 (Issue 2), dated, October 2001.
- Explanations and Interpretations, WELMEC 3.1 (Issue1), dated June 1994.
- 'Guide for Notified Bodies performing Conformity Assessment of Measuring Instruments, WELMEC 4.1 (Issue 2), dated April 1999.
- European Directory of Legal Metrology, WELMEC 5.1.
- Guide on Market Surveillance, WELMEC 5.2. June 2004.

These may be found at [www.welmec.org](http://www.welmec.org).

252. All of the WELMEC guidance relating to non-automatic weighing instruments will be available on the EMeTAS CD.
253. Information about NWML, the services it offers and the areas of work which it is currently progressing may be found on the NWML website at [www.nwml.gov.uk](http://www.nwml.gov.uk).

# Annex 1 - Extracts from the Weights and Measures Act 1985

## Section 7(1) - (4)

- (1) In this Act "use for trade" means, subject to sub-section (3) below, use in Great Britain in connection with, or with a view to, a transaction falling within subsection (2) below where -
  - a) the transaction is by reference to quantity or is a transaction for the purposes of which there is made or implied a statement of the quantity of goods to which the transaction relates, and
  - b) the use is for the purpose of the determination or statement of that quantity.
- (2) A transaction falls within this subsection if it is a transaction for -
  - a) the transferring or tendering of money or money's worth in consideration of money or money's worth, or
  - b) the making of a payment in respect of any toll or duty.
- (3) Use for trade does not include use in a case where -
  - a) the determination or statement is a determination or statement of the quantity of goods required for despatch to a destination outside Great Britain and any designated country;
  - b) the transaction is not a sale by retail, and
  - c) no transfer or rendering of money or money's worth is involved other than the passing of the title to the goods and the consideration for them.
- (4) The following equipment, that is to say -
  - a) any weighing or measuring equipment which is made available in Great Britain for use by the public, whether on payment or otherwise, and
  - b) any equipment which is used in Great Britain for the grading by reference to their weight, for the purposes of grading transactions by reference to that grading, of hens' eggs in shell which are intended for human consumption, shall be treated for the purpose of this Part of this Act as weighing or measuring equipment in use for trade, whether or not it would apart from this subsection be so treated.
- (5) Where any weighing or measuring instrument is found in the possession of any person carrying on trade or on any premises which are used for trade, that person or, as the case may be, the occupier of those premises shall be deemed for the purposes of the Act, unless the contrary is proved, to have that equipment in his possession for use for trade.

## **Section 8**

- (2) No person shall use for trade -
- a) the ounce troy, except for the purposes of transactions in, or in articles made from, gold, silver or other precious metals, including transactions in gold or silver thread, lace or fringe, or
  - b) the carat (metric) except for the purposes of transactions in precious stones or pearls.

## **Section 15**

- (3) Subject to subsection (5) (of section 15 of the Act), if any person contravenes any regulation made by virtue of subsection (1) (e), (f), (g) or (h) above, he shall be guilty of an offence, and any weighing or measuring equipment in respect of which the contravention was committed shall be liable to be forfeited.
- (4) If any difference arises between an inspector and any other person as to the interpretation of any regulations made under this section or as to the method of testing any weighing or measuring equipment, that difference may with the consent of that other person, and shall at the request of that other person, be referred to the Secretary of State, whose decision shall be final.

## **Schedule 4**

- (1) In this Schedule "ballast" means any of the following materials, that is to say -
- a) sand, gravel, shingle, ashes and clinker of any description,
  - b) broken slag, slag chippings, granite chippings, limestone chippings, slate chippings and other stone chippings (including such materials which have been coated with tar, bitumen or cement),
  - c) any other material commonly used in the building and civil engineering industries as a hardcore or an aggregate, and
  - d) any other material commonly known in those industries as ballast.

## Annex 2 - Table - Effects of Gravity (Paragraphs 136-142 refer)

Accuracy Class	Number of verification scale intervals (n)	Gravity variation (e) Latitude change constant altitude		Gravity variation (e) Altitude change constant latitude			Maximum permissible error [m.p.e] (e)	
		2km	5km	1m	2m	5m	(1)	(2)
I	100,000	0.15	0.38	0.03	0.06	0.15	1.0	2.0
	200,000	0.30	0.75	0.06	0.12	0.30	1.0	2.0
	300,000	0.45	1.13	0.09	0.18	0.45	1.5	3.0
	500,000	0.75	1.88	0.15	0.30	0.75	1.5	3.0
II		20 km	50 km	10 m	20 m	50 m	(1)	(2)
	10,000	0.15	0.38	0.03	0.06	0.15	1.0	2.0
	20,000	0.30	0.75	0.06	0.12	0.30	1.0	2.0
	30,000	0.45	1.13	0.09	0.18	0.45	1.5	3.0
III		200 km	500 km	100 m	200 m	500 m	(1)	(2)
	1,000	0.15	0.38	0.03	0.06	0.15	1.0	2.0
	2,000	0.30	0.75	0.06	0.12	0.30	1.0	2.0
	3,000	0.45	1.13	0.09	0.18	0.45	1.5	3.0
IIII		2000 km	5000 km	1000 m	2000 m	5000 m	(1)	(2)
	100	0.15	0.38	0.03	0.06	0.15	1.0	2.0
	200	0.30	0.75	0.06	0.12	0.30	1.0	2.0
	300	0.45	1.13	0.09	0.18	0.45	1.5	3.0
	500	0.75	1.88	0.15	0.30	0.75	1.5	3.0

Note: 1 refers to initial verification, 2 refers to in-service inspection

## **Annex 3 - Form of Information on Judicial Remedies**

Copyright protection does not apply to this Annex.

### **INFORMATION GIVEN PURSUANT TO REGULATION 22 OF THE NON-AUTOMATIC WEIGHING INSTRUMENTS (EEC REQUIREMENTS) REGULATIONS 2000 (SI 2000 No 3236)**

Where the Regulations do not provide for appeals to be made against a decision made under them, the decision may, under certain circumstances, be challenged by judicial review. You should consider taking legal advice in the first instance, and your legal adviser should be able to advise whether a court would be likely to recommend the matter for judicial review.

In practice, as a result of bringing a matter to court, the court is likely either to uphold the decision complained of, to quash the decision, or to require the person who made the decision to reconsider it. The court will not normally substitute its own decision. In certain circumstances it may grant other relief, including an award of damages.

Procedures differ depending on whether the proceedings are instituted in England and Wales, in Northern Ireland or in Scotland. However the following brief descriptions may assist, subject to your own legal advice.

#### **England and Wales and Northern Ireland**

In England and Wales, the procedures are governed by the Rules of the Supreme Court, in particular by Order 53.

In Northern Ireland, the procedures are governed by Rules of the Supreme Court (Northern Ireland) 1980, in particular by Order 53.

Application for leave to apply for judicial review must be made in a document setting out the relief sought and the grounds upon which it is sought. The application for leave must be accompanied by an affidavit setting out the relevant facts and accompanied by copies of relevant documents.

The application must be made promptly and in any event within three months from the date when grounds for the application first arose (that is to say, from the date when notice of the decision complained of is given to you) unless the court considers that there is good reason for extending the period.

If leave is granted, the applicant must apply for judicial review in accordance with the Rules of Court. There are time limits which must be observed.

#### **Scotland**

In Scotland, an application for judicial review may be made only to the Court of Session. The detailed procedure for making the application is contained in Rule 260B of the Rules of the Court of Session. Rule 260B may be found in the Act of Sederunt (Rules of Court, Consolidation and Amendment) 1965 (SI 1965 No 321, as amended by SI 1985 No 500 and SI 1990 No 705).

No leave is required to make application for judicial review and there is no specific time limit within which such an application must be made.

## Annex 4 - Bibliography

- Council Decision No 93/465/EEC of 22.7.93 concerning the modules for the various phases of the conformity assessment procedures and the rules for the affixing and use of the CE conformity marking, which are intended to be used in the technical harmonisation Directives published in the Official Journal of the EC, L220 of 30.8.93.
- BS EN ISO 9001-2000 is the equivalent of what was BS 5750 Part 2.
- EN 45000 standard is equivalent to the BS 7500 series.
- EN 45501 CEN/CENELEC, Brussels, October 1992.
- Guide to the implementation of Community harmonisation directives based on the new approach and the global approach, EC Commission, Brussels. This contains Commission guidance on various concepts and expressions in such directives. It is available on line from <http://europa.eu.int/comm/enterprise/newapproach/legislation/guide/legislation.htm>.
- Weighing instruments Part 1: Metrological and technical requirements - Tests, R 76, International Organisation for Legal Metrology, 11 rue Turgot, Paris 75009, France or "on line" from <http://www.oiml.org/publications/>.
- NWML TE/01 (Application for consultancy), TE/02 (Application for type examination), TE/03 (Type Examination and Consultancy at NWML Guidance and Requirements).
- Weighing Equipment (Non-automatic Weighing Machines) Regulations 2000, SI 2000/932.
- Units of Measurement Regulations 1994, SI 1994/2867, and the Weights and Measures (Metrication) Regulations 1994, SI 1994/1851, which partially implement Directive 80/181/EEC as amended on units of measurement.
- WELMEC 4.1 issue 2 Guide for the assessing and operation of Notified Bodies performing conformity assessment according to the Directive 90/384/EEC - re Reg 9.

## Annex 5 - Descriptions of the stickers and the identification number

The Directive does not specify in detail the form and appearance of all the various stickers and symbols, unlike Directive 71/316/EEC. It has therefore been necessary to decide, following consultations, on the details that will apply under the Regulations.

Arrangements have been made with The Stationery Office Limited (formerly HMSO) for the design and also for the supply of the various items to those manufacturers and local weights and measures authorities who need them.

Manufacturers will require the green 'M' sticker, the CE marking and the restrictive use symbol (label numbers 1, 3 and 6 respectively). Manufacturers who have an approved quality system for the purposes of the EC declaration of type conformity will also require the identification number and the re-qualification sticker (label numbers 2 and 5 respectively). Local authorities will need their identification number, disqualification and re-qualification stickers (label numbers 2, 4 and 5 respectively).

Orders should be sent to:

Cathy Mason  
Astron  
St Crispins  
Duke Street  
Norwich  
NR3 1PD

Tel +44 (0)870 279 1060  
Fax +44 (0)870 279 1001  
email [cathy.mason@astron.co.uk](mailto:cathy.mason@astron.co.uk)

Please order by reference to the label number - see below - and quote: TAMPERPROOF LABELS - NWML, together with your Astron cost centre code if you have one.

The price for labels no 1, 4 and 5 is £19.00 per roll of 500 labels - this is the minimum quantity that can be ordered. The price for labels no 2 and 3 is £31.00 per roll. When ordering label no 2 authorities must state what their number is, as allocated by the Commission; and manufacturers must state the identification number of the approved body which has granted approval of their quality system. Astron do not hold a master list of numbers. The price for a roll of label no 6 is negotiable – these labels are four times the size of the others). Delivery is £15 irrespective of the number of rolls ordered. These prices exclude VAT.

The arrangements cover the "family" of stickers and symbols as described and depicted below.

The stickers and symbols are printed on tamperproof material which laboratory tests have shown is suitable having regard to security and hygiene requirements. They are all square, 12.5 mm by 12.5 mm, apart from the restrictive use symbol which is 25 mm by 25 mm.

The **sticker**, the "green sticker", (LABEL NUMBER 1) has a large letter M on a plain green background.



The **identification number** (LABEL NUMBER 2) carries the four-digit number issued by the Commission to an approved body. The number is in black on a white background across which run wavy lines of "90/384" repeated in blue.



The **CE marking** (LABEL NUMBER 3) consists of the letters CE shown in Schedule 4. The letters are black and the background is yellow.

The **disqualification sticker** (LABEL NUMBER 4) consists of a six-pointed star design (the traditional obliteration stamp) in red superimposed on a Crown (in the traditional shape) in grey in turn on the background described for the identification number.



The **re-qualification sticker** (LABEL NUMBER 5) carries the Crown in black on the same background described for the identification number.



The **restrictive use** symbol (LABEL NUMBER 6) consists of a black 'M' on a red background.



Guidance on issues raised in connection with the application of stickers can be found at [www.nwml.gov.uk/faq/faq\\_nawi.asp](http://www.nwml.gov.uk/faq/faq_nawi.asp).

## Annex 6 - Descriptions of supplementary legislation

The **Weights and Measures (Packaged Goods) (Amendment) Regulations 1992** and the **Weights and Measures (Packaged Goods) (Amendment) Regulations (Northern Ireland) 1992** amend Schedule 4 (equipment for use in making up and checking regulated packages) in the substantive Regulations on packaged goods so as to include instruments complying with the Directive. The making up of pre-packages is one of the categories covered in "Schedule 3 applications".

The **country Orders**, two each for the **Isle of Man, Jersey** and **Guernsey** and one each for **Great Britain** and **Northern Ireland**, arise from the reciprocal recognition arrangements put in place under the Weights and Measures Act 1985 and the Weights and Measures (Northern Ireland) Order 1981 for equipment validly stamped in one of those places to be accepted in another without the need for re-stamping. The Directive does not apply to the Channel Islands or the Isle of Man, and so the Orders now provide that the reciprocal recognition arrangements will no longer apply to non-automatic weighing instruments as from the end of the transitional period, i.e. 31 December 2002.

The **Measuring Instruments (EEC Requirements)(Fees) Regulations 2004** stipulate the fees payable in connection with the services provided by the National Weights and Measures Laboratory in respect of the designation of approved bodies, the granting of an EC type approval certificate, or the approval of modifications or additions to an approved type, and EC unit verification.

## Annex 7 - Applicability of regulations

This Annex seeks to identify, by number, the regulations of interest to the principal parties.

Regulation	User	NWML	ACB	LWMA (approved body)	LWMA (Authorised Person)	Manufacturer
3(2)	✓				✓	✓
4	✓				✓	✓
5(1)-(4)	✓			✓	✓	✓
5(5)		✓	✓	✓		✓
6					✓	✓
7		✓		✓	✓	✓
8		✓	✓	✓	✓	✓
9(1)-(7)		✓	✓	✓		
9(8)					✓	
10		✓				✓
11				✓		✓
12		✓				✓
13			✓			✓
14		✓	✓	✓		✓
15			✓			✓
16					✓	✓
17			✓			✓
18		✓		✓		✓
19				✓		✓
20		✓			✓	✓
21		✓		✓		✓
22	✓				✓	✓
23-24	✓				✓	
25	✓	✓			✓	✓
26		✓			✓	✓
27	✓				✓	
28-37	✓				✓	
38-39	✓				✓	✓
40-41	✓				✓	✓
Sch 1, 2		✓		✓		✓
Sch 3	✓	✓		✓	✓	✓

# Annex 8 - Guidance notes for use by approving authorities undertaking initial verification of non-automatic weighing instruments in accordance with the International Recommendation R 76-1 Edition 1992

## 0.0 Contents

- 1.0 Introduction
- 2.0 Declaration of Conformity
- 3.0 Visual Inspection Prior to Testing
- 4.0 Tests
- 5.0 Stamping

## 1.0 Introduction

### 1.1 The Relevance of R 76-1 to Initial Verification

The International Recommendation R 76-1 Edition 1992 is a product of the O.I.M.L. (the International Organisation for Legal Metrology); whose main task is that of harmonising the metrological controls and regulations of its Member States. R 76-1 is a model regulation for establishing the metrological characteristics of non-automatic weighing instruments (NAWIs) and for specifying methods of checking their conformity with certain requirements. This Recommendation has subsequently been adopted as the basis for the British (Relevant National Standard) and European (Harmonised) Standard BS EN 45501:1994. The metrological conformity of a NAWI to this Standard is taken to be a presumption of conformity to the Essential Requirements of the European Directive 90/384/EEC, as amended, (the so-called "NAWI Directive"). **Please note that the changes made as a result of Amendment 1 to R 76-1 issued in 1994 are not reflected in these guidance notes as they have not been incorporated in the requirements of the harmonised standard.**

### 1.2 The Scope of these Guidance Notes

Whereas the major metrological controls for NAWIs are: -

- a) Pattern approval (also known as "Type Approval" in Europe);
- b) Initial verification;
- c) Subsequent verification (including re-verification);
- d) In-service inspection; and
- e) Market surveillance:

the scope of these guidance notes is restricted, as far as possible, to initial verification only.

These notes are a consolidation of the NAWI check and test procedures scattered throughout R 76-1. Approving Authorities may want to make quick reference to the procedures when verifying NAWIs. Likewise, other bodies involved in the subsequent verification or in-service inspection of NAWIs may also want a ready reference.

Guidance notes alone are seldom a good alternative to training. Suitably qualified persons can use these notes for reference purposes or as an aid in training others. They should, however, always read these notes in conjunction with R 76-1, or one of its recognised derivatives.

Guidance, as such, on the in-service inspection of NAWIs is not addressed here. However, it should be borne in mind that those persons who have little or no knowledge or understanding of the recommended initial verification test procedures should not undertake in-service inspection.

Pattern approval testing is not fully addressed in these notes either, since this task is normally undertaken by a National Competent Body rather than by an Approving Authority. However, where NAWIs are exempt from pattern approval control, Approving Authorities may still have to make appropriate technical judgements as to the conformity of NAWIs. Such judgements may be partly based on the tests recommended in R 76-1.

### **1.3 Performance of Initial Verification**

The Recommendation limits initial verification of NAWIs to manufacturers (self-verifiers) and verifying authorities. These two terms are not defined, but are taken here to include: -

- a) *Bona fide* assemblers of NAWIs;
- b) Competent Authorities undertaking the combined pattern approval and verification of a single NAWI, known as "Unit Verification".

Approving Authorities are not necessarily precluded from undertaking the subsequent verification or reverification of a NAWI, simply because its initial verification was undertaken by a manufacturer, assembler or some other accredited body.

R 76-1 requires that NAWIs should generally be verified at the time and place of installation, unless their transport, assembly and installation can readily be undertaken following initial verification at their place of manufacture. Manufacturers and authorities should also take into account the effect of differences in gravity due to the relocation of a NAWI from one gravity zone to another.

## **2.0 Declaration of Conformity**

### **2.1 Basic Requirement**

R 76-1 requires that initial verification of a NAWI shall not be performed unless it is established that the instrument does conform, either to an approved pattern or, if it is exempt from pattern approval, to the technical requirements of the Recommendation.

### **2.2 NAWIs exempt from Pattern Approval**

Some kinds of "common form" NAWIs, such as ungraduated, non-self-indicating counter machines or simple beamscales, are generally exempt from pattern approval control because of the simplicity of their basic construction. Nevertheless, weighing instruments like these must still conform to the appropriate technical requirements of R 76-1 at the time of their initial verification.

## **2.3 Technical Judgement as to Conformity**

A technical judgement as to the conformity of a common form NAWI may have to be made by an Approving Authority undertaking its verification. The Approving Authority will most likely have to apply some conformity tests, in addition to those normally applied at the time of initial verification. See section 4.11 for further details of conformity testing.

## **2.4 Manufacturer's Responsibility**

It is usually the manufacturer's responsibility to draw up a written Declaration of Conformity in respect of a NAWI. In most cases, a dossier of technical drawings, specifications and documentation will supplement a Declaration covering the following aspects: -

- a) A statement of conformity of the NAWI either to an approved pattern or to the technical requirements of R 76-1 or both;
- b) The correct functioning of all devices, e.g. zero-setting, zero-tracking, tare and price-computing devices;
- c) The material of construction and design, as far as they are of metrological relevance.

Approving Authorities should be in possession of a copy of the manufacturer's Declaration of Conformity and the Certificate of Pattern Approval (if any) before the initial verification of a NAWI is commenced. These documents may be of assistance to an Approving Authority in making a technical judgement as to the conformity of the NAWI and whether additional tests should be applied to it.

## **3.0 Visual Inspection Prior to Testing**

**The Recommendation requires that: -**

"Before testing a NAWI, the instrument shall be visually inspected for:

- Metrological characteristics, i.e. accuracy class, Min, Max, e, d,
- Prescribed inscriptions and positions for verification and control marks.

If location and conditions of use of the NAWI are known, it should be considered whether they are appropriate.

## **3.1 Metrological Characteristics**

NAWIs have four permissible classes of accuracy ascribed to them:

- Class I or special accuracy, typically for precious stones and metals,
- Class II or high accuracy, typically for pharmaceutical products etc,
- Class III or medium accuracy, for everyday trade purposes,
- Class IIII or ordinary accuracy, for approximate weighing.

**During the visual inspection, it should be ensured that the stated accuracy class is appropriate to the NAWI's intended application (if known) and to any local or national requirements that may apply.**

Likewise, the minimum and maximum capacities of the NAWI, and its scale intervals, should be assessed for their appropriateness. For example, it may not be appropriate to verify for trade use a road weighbridge, having a verification scale interval of 20 kg, when its main purpose would be to determine the trade weight of individual sheep, pigs and goats!

### **3.2 Prescribed Inscriptions, Verification and Control Marks**

The descriptive markings that a NAWI should carry are listed in full in section 7.1 of R 76-1 and are, therefore, not repeated here. Certificates of Pattern Approval may provide additional information as to how, when and where prescribed inscriptions should be marked on an approved NAWI. Max, Min, "e" and "d" (if it is not equal to "e"), should be shown near to the display of the weighing result.

Likewise, section 7.2 addresses the positioning and mounting of verification marks. Certificates of Pattern Approval may also specify special sealing arrangements, and depict how sensitive components, such as calibration devices and load-cell junction boxes, should be secured in order to prevent or expose unauthorised access.

### **3.3 Location and Conditions of Use**

The International Recommendation requires, in clause 8.3.2, that the location and conditions of use of a NAWI should be considered as to their appropriateness, if known at the time of initial verification. There is little or no guidance given on this topic by the Recommendation, itself, but experience has shown that the following issues could usefully be addressed during an assessment: -

- a) Can the operator see all parts of the load receptor and operate all of the controls and peripherals from the usual operating position? A weighbridge operator, for example, should be able to see the weighing, observe the indication and record or print the result without having to move away from the controls. The use of interlocks, mirrors or close-circuit television may be an acceptable solution, for example;
- b) Where weighing takes place in the presence of customers, can they see the entire weighing operation and all of the relevant indications and inscriptions on the NAWI? Local laws, too, may require that a clear and unobstructed view of the weighing operation and of the weighing result should be afforded in direct sales to the public;
- c) Is the location or operating condition of the NAWI likely to facilitate the perpetration of fraud? (A fraud is a deceitful trick.) Could customers be readily deceived as to the correct weights of item? This applies equally, whether customers are buying goods, selling old gold and silver to a dealer, receiving payment for work done (e.g. fruit picking) or paying a toll or tax, such as on a baggage weigher;
- d) Is the NAWI likely to be exposed to "influence factors", such as vibration, or repeated overloading and other abuses, which will adversely affect its function or prematurely degrade its metrological integrity?;

- e) Mechanical components and moving parts can be badly affected by poor environmental conditions and by the ingress of corrosive or abrasive substances. Electronic components are susceptible to interference from electromagnetic radiation, lightning strike, mains-borne interference, voltage drops and spikes, not all of which can be reasonably avoided.

## **4.0 Tests**

- 4.1 Explanatory Note
- 4.2 Evaluation of Errors
- 4.3 General Particulars
- 4.4 Substitution of Test Weights
- 4.5 Accuracy of Zero-Setting Device (Digital Indication Only)
- 4.6 Linearity and Hysteresis
- 4.7 Repeatability
- 4.8 Eccentric Loading
- 4.9 Discrimination
- 4.10 Accuracy of Tare Device and Tare Weighing
- 4.11 Other Tests

### **4.1 Explanatory Note**

These notes set out how the verification tests recommended under R 76-1 should be applied and how the test results should be determined. Instruments with digital indicators are dealt with at some length because their testing is more involved. The order of testing and the possible combination of some of the tests are not addressed here, since these are matters of discretion for the Approving Authorities.

### **4.2 Evaluation of Errors**

Various symbols and formulae are used in R 76-1 and the same ones are used here for the sake of consistency.

#### **Where a NAWI has: -**

- a) Digital indication only; and
- b) No auxiliary indicating device for reading to a scale interval less than  $e$ , the verification scale interval; and
- c) An actual scale interval,  $d$ , which is greater than or equal to  $1/5 e$  (typically, for Class III and Class IIII NAWIs, their verification scale and actual scale intervals are one and the same. This may be expressed symbolically as:  $d = e$ );

Then "**changepoints**" are to be used to evaluate the **rounding** errors. A changepoint is the moment when a digital indication increases unambiguously by one scale interval. The changepoint method is peculiar to instruments with digital indicators. A nawi with analogue indication, namely a graduated scale and moving pointer, does not require anything more than simple interpolation.

**In order to evaluate the errors of indication using the changepoint method: -**

- a) Place a certain (known) load, **L**, on to the load receptor;
- b) Note the digitally indicated value, **I**;
- c) Add changepoint weights to the load receptor one at a time until the digital indication of the instrument is increased unambiguously by one scale interval, that is from **I** to **I + e**. (A changepoint weight usually has a value equivalent to  $1/10 e$ , but should not be greater than  $1/5 e$ );
- d) Determine the additional load, **delta L**, which caused the change of indication, simply by counting the changepoint weights added to the load receptor and multiplying their number by their value;
- e) Evaluate the indication prior to rounding, **P**, using the following formula:

$$\mathbf{P = I + 1/2 e - \delta L}$$

- f) Evaluate the error prior to rounding, **E**, using: -

$$\mathbf{E = P - L}$$
 which can also be expressed as:

$$\mathbf{E = I + 1/2 e - \delta L - L}$$

- g) Evaluate the corrected error prior to rounding, **Ec**, using:

$$\mathbf{Ec = E - Eo}$$
 which can be expressed fully as:

$$\mathbf{Ec = I + 1/2 e - \delta L - L - Eo}$$

(**Eo** is the error of the zero-setting device, calculated at or close to zero. The absolute or numerical value of **Eo** may not exceed  $0.25 e$ .)

For example, consider a weighbridge with a verification scale interval of 20 kilograms ( $e = 20 \text{ kg}$ ) and an error at or close to zero of  $-2 \text{ kg}$  ( $-0.1 e$ ). A test load of 10 000 kg is placed on the load receptor. The digital indication shows "10000 kg". Seven changepoint weights, each of 2 kg ( $0.1 e$ ) in value, are used to change the digital indication. The error of indication is expressed as:

$Ec = I + 1/2 e - \delta L - L - Eo$  substituting the values gives:

$$Ec = 10000 + (1/2 \times 20) - (7 \times 2) - 10000 - (-2)$$

$$= (10000 + 10 - 14 - 10000 + 2) \text{ kg} \quad (\text{note the double negative for } Eo !)$$

**Therefore the corrected error, **Ec**, is minus 2 kilograms, or **Ec = - 0.1 e****

The following 'Ready Reckoner' chart may be used as a quick aid to evaluating errors:

Indicated Value (I)	(x0.1 e)					
	Added 0.1 e	Error -2	-1	zero 0	+1	+2
Nominal minus three scale intervals (-3 e)	10	-33	-34	-35	-36	-37
	9	-32	-33	-34	-35	-36
	8	-31	-32	-33	-34	-35
	7	-30	-31	-32	-33	-34
	6	-29	-30	-31	-32	-33
	5	-28	-29	-30	-31	-32
	4	-27	-28	-29	-30	-31
	3	-26	-27	-28	-29	-30
	2	-25	-26	-27	-28	-29
Nominal minus two scale intervals (-2 e)	10	-23	-24	-25	-26	-27
	9	-22	-23	-24	-25	-26
	8	-21	-22	-23	-24	-25
	7	-20	-21	-22	-23	-24
	6	-19	-20	-21	-22	-23
	5	-18	-19	-20	-21	-22
	4	-17	-18	-19	-20	-21
	3	-16	-17	-18	-19	-20
	2	-15	-16	-17	-18	-19
Nominal minus one scale interval (-1 e)	10	-13	-14	-15	-16	-17
	9	-12	-13	-14	-15	-16
	8	-11	-12	-13	-14	-15
	7	-10	-11	-12	-13	-14
	6	-9	-10	-11	-12	-13
	5	-8	-9	-10	-11	-12
	4	-7	-8	-9	-10	-11
	3	-6	-7	-8	-9	-10
	2	-5	-6	-7	-8	-9
Nominal	10	-3	-4	-5	-6	-7
	9	-2	-3	-4	-5	-6
	8	-1	-2	-3	-4	-5
	7	0	-1	-2	-3	-4
	6	1	0	-1	-2	-3
	5	2	1	0	-1	-2
	4	3	2	1	0	-1
	3	4	3	2	1	0
	2	5	4	3	2	1
1	6	5	4	3	2	

Indicated Value (I)	Added 0.1 e	Error				
		-2	-1	zero	(x0.1 e) +1	+2
Nominal plus one scale interval (+1 e)	10	7	6	5	4	3
	9	8	7	6	5	4
	8	9	8	7	6	5
	7	10	9	8	7	6
	6	11	10	9	8	7
	5	12	11	10	9	8
	4	13	12	11	10	9
	3	14	13	12	11	10
	2	15	14	13	12	11
	1	16	15	14	13	12
Nominal plus two scale intervals (+2 e)	10	17	16	15	14	13
	9	18	17	16	15	14
	8	19	18	17	16	15
	7	20	19	18	17	16
	6	21	20	19	18	17
	5	22	21	20	19	18
	4	23	22	21	20	19
	3	24	23	22	21	20
	2	25	24	23	22	21
	1	26	25	24	23	22
Nominal plus three scale intervals (+3 e)	10	27	26	25	24	23
	9	28	27	26	25	24
	8	29	28	27	26	25
	7	30	29	28	27	26
	6	31	30	29	28	27
	5	32	31	30	29	28
	4	33	32	31	30	29
	3	34	33	32	31	30
	2	35	34	33	32	31
	1	36	35	34	33	32

Notes for use of chart:

Evaluation of Error for instruments with a digital indication and without a device for displaying the indication with a smaller scale interval (\*0.2 e).

- 1) For a certain load, note the indicated value on the instrument and find its equivalent in column 1 of this chart. ie -3 e, -2 e, - e, nominal, + e, +2 e, +3 e.
- 2) Count the number of trip-weights of value 0.1 e which are successively added until the indication of the instrument is increased unambiguously by one scale interval.
- 3) Read off the error from the chart for the indicated value (column 1) and number of trip-weights (column 2) against the value of the error at or close to zero as shown at the top of columns 3 to 7.
- 4) The error figures are given as tenths of a single interval (e), so divide by 10 for the true weight value.

**Example for weighbridge Max = 50,000; e = 20Kg(e)**

10,000 Kg on the plate. Digital Indicator shows 10,040.

Error at or close to zero = 4 Kg = + 0.2 e.

Indicated Value = Nominal +2 e.

Trips out at +18 Kg (0.9 e).

Read off value 14.

Error = +1.4 e.

### 4.3 General Particulars

Record the results of the verification tests and other relevant data, including the following, in respect of each NAWI: -

- a) The unique identification of the instrument under test (IUT), and its major components or modules;
- b) The identification of the weights and other equipment used in testing, including their date of next calibration;
- c) The date and place of testing;
- d) The ambient conditions (e.g. temperature); and
- e) For NAWIs particularly sensitive to geographical differences in the acceleration due to gravity, the local gravity zone or latitude and altitude.

It is important for Approving Authorities to be able to replicate the actual conditions prevailing at the time of initial verification, in case of a later dispute or query as to the accuracy of the NAWI. For example, a weighbridge verified on a warm, dry day may exhibit a different weighing performance when it is cold and wet.

A NAWI conforming to an approved pattern is unlikely to show significant errors due to varying environmental conditions, since the pattern approval tests include checks for these. However, it is not unknown for mass-produced nawis to include components, such as load-cells, which do not conform to the approved pattern. It is considered to be a good practice, therefore, for Approving Authorities to record, wherever possible, the identification of the major components or modules that make up a NAWI.

### 4.4 Substitution of Test Weights

Clause 3.7.3 of R 76-1 sets out the minimum proportion of weights to be used for the testing of NAWIs.

The quantity of weights that must be used will depend upon the maximum capacity of the instrument under test. For instruments that have a maximum capacity of more than 1 tonne, provided that the value of the weights used equals at least 50% of the maximum capacity, or 1 tonne, whichever is the greater, the balance of the test load may be made up of any other constant load. This means, for example, that when testing a weighbridge of 60 tonnes capacity, it may be necessary to use at least 30 tonnes of calibrated test weights.

However, the portion of standard weights required for testing may be reduced if the repeatability of the instrument is good. In order to determine an instrument's repeatability, it is tested over three consecutive weighings with a weight of approximately half of the maximum capacity (50% of Max). These tests need not be carried out with test weights, as the absolute error is not required; it is simply any variation between the three weighings, which needs to be established.

The test could be achieved by, for example, positioning a vehicle on the weighbridge in the same position on three successive occasions. If these tests reveal that the repeatability error is not greater than 0.3e, the portion of standard weights used for subsequent testing may be reduced to 35% of the maximum capacity of the instrument (21 tonnes of standard weights for a 60 tonne capacity weighbridge). If these tests reveal that the repeatability error is not greater than 0.2e, the portion of standard weights used for subsequent testing may be reduced to 20% of the maximum capacity of the instrument (12 tonnes of standard weights for a 60 tonne weighbridge). Unless the environmental conditions are near perfect, with little or no rain or wind effects, then it will be extremely difficult to achieve these reductions. As before, any other constant material may be used to make up the balance of subsequent test loads.

It is permissible to substitute standard weights etc. with other constant material, subject to using weights or equivalent equipment of at least 1000 kg or 50% of Max, whichever is the greater. The best practice is to use as great a proportion of calibrated weights as possible, since this will help to reduce experimental and measurement errors to a minimum. Modern weighbridge testing units may typically carry 20 – 25,000 kilograms of suitably accurate test weights. Even these considerable quantities may not be enough for initial verification purposes, unless the "Substitution Test" shows that a proportion less than 50% of Max are sufficient.

For example, consider a weighbridge with Max = 60,000kg and e = 20kg. A test load of approximately 50% of Max is placed on the load receptor three times and the indication prior to rounding, **P**, is evaluated using changepoints: -

I (kg)	Delta L (kg)	$P = I + e^{1/2} \Delta L$ (kg)
29,980	8	$29980 + 10 - 8 = 29982$ (P1)
30,000	18	$30000 + 10 - 18 = 29992$ (P2)
29,980	4	$29980 + 10 - 4 = 29986$ (P3)

The range, **R**, is the greatest value of **P** minus the least value, or  
**R = P2 – P1** (in this example)

$$R = 29992 - 29982 = 10\text{kg}$$

$$10\text{kg} = 0.5e$$

Therefore at least 50% of Max in calibrated standard weights must be used for the verification tests in this example, according to R 76-1, Clause 3.7.3.

#### 4.5 Accuracy of Zero-Setting Device (Digital Indication Only)

The Recommendation specifies that, after setting the instrument to zero, the effect of the zero deviation on the result of weighing shall be not more than 0.25e. On an instrument with an auxiliary indicating device, this effect shall be not more than 0.5 d. See clause 4.5.2 of R 76-1.

A zero-setting device is used to set a NAWI's indication to zero when there is no load on its load receptor. The device can take one of four forms: -

- a) **Non-automatic**, where the operator physically sets the indication to zero by some means, such as by adjusting a "balance ball" with a tool;

- b) **Semi-automatic**, where the operator gives a manual command, such as pressing the "zero" key on an electronic counter machine;
- c) **Automatic**, where the operator does not intervene; and
- d) **Initial**, where the indication is set to zero automatically at the time that the (electronic) NAWI is switched on and before it is ready for use.

For a NAWI with a non-automatic or semi-automatic zero-setting device, but without automatic zero-tracking, accuracy is tested by setting the instrument to zero and then determining the additional load, **delta L**, at which the indication changes from zero to one scale interval above zero. The Error at zero, **Eo**, is then given by: -

$$E_o = 1/2 e - \text{delta L.}$$

A zero-tracking device maintains the zero indication within certain limits automatically. It compensates for the relatively slow accretion and depletion of extraneous matter, which may accumulate on to a load receptor. For example, the load receptor of a weighbridge may have on it a gradual build up of dirt, grease and oil from vehicles, or rain and snow, which would otherwise cause it to show a non-zero indication. When initial verification or other testing is being undertaken, however, the automatic zero-tracking device "frustrates" the method of adding changepoint weights to the load receptor, since the device compensates for them too. This requires a modified method for determining the accuracy of the zero-setting device for a NAWI having either: -

- a) An automatic zero-setting device; or
- b) Semi-automatic zero-setting device together with an automatic zero-tracking device.

The error at or close to zero can be determined by the following method: -

- a) Ensure that the load receptor is clear of all weights etc;
- b) Set the indication to zero by the appropriate means;
- c) Bring the indication out of the automatic range of zero-tracking, by placing a known load, **L**, of not more than 10 e in value, onto the load receptor;
- d) Note the indication, **I**;
- e) Add changepoint weights to the load receptor until the indication changes unambiguously from **I** to **I + e**;
- f) Determine the additional load, **delta L**, required to effect the change of indication; then;
- g) Use the formula: -

$$E_o = I + 1/2 e - \text{delta L} - L$$

It is assumed that the error at zero equals the error at the load, **L**, where **L** is not greater than 10 e.

Consider the example of a weighbridge with a verification scale interval equal to 20 kg. The load receptor is cleared and the semi-automatic zero-setting device is operated. A test load of 200 kg (10 x 20 kg) is placed on the receptor and the indicator shows "00200 kg". Seven changepoint weights, each of 2 kg in value are successively added to the receptor and the indication changes to "00220 kg". The error at or close to zero is then evaluated: -

$$\begin{aligned}
 E_o &= I + \frac{1}{2} e - \Delta L - L \\
 &= 200 + 10 - 14 - 200 \text{ (kilograms)} \\
 &= -4 \text{ kg} \\
 \underline{E_o} &= -0.2 e
 \end{aligned}$$

The absolute value of the error at or close to zero is less than 0.25 e and, therefore, the NAWI "passes" this particular test. The value of E<sub>o</sub> determined here may subsequently be used in evaluating the corrected error, E<sub>c</sub>, in other tests on the NAWI. However, the value of E<sub>o</sub> may have to be re-determined during a protracted test program, in order to ensure that it is stable.

#### 4.6 Linearity and Hysteresis

The maximum permissible errors for increasing or decreasing loads are given in table 6 of the International Recommendation R 76-1. These maximum permissible errors apply to net values for every possible tare load, except pre-set tare values. Where the actual scale interval, d, is greater than 0.2 e, which is generally the case, then the **rounding errors** in any digital indication must be eliminated by the method given above in section 4.2 on the Evaluation of Errors.

During testing, known test loads should be placed on the load receptor from zero up to and including Max, or as close to Max (95% say) as is possible. The test loads should then be removed in the reverse order back to zero or, in the case of an instrument with an automatic zero-tracking device, until 10 e is reached. At least five different test loads should be selected, including Max and Min, and the error change points. Error change points are the values at which the maximum permissible errors (MPE) change. For example, in respect of a class III NAWI, the permissible errors change at 501e and 2001e and so test loads equivalent to, or slightly less than, 500 e and 2000 e should be used in testing. When loading or unloading, the test loads should be smoothly and progressively increased or decreased.

When substitute material has to be used to supplement calibrated standard weights, the minimum proportion of weights should first be placed on the receptor. The corrected error, E<sub>c</sub>, should then be determined, using the formula given in section 4.2. The weights should then be removed until either the no-load indication, or, in the case of an instrument with a zero-tracking device, the indication of say 10 e is reached.

Substitute material should then be placed onto the load receptor until the same load and changeover point as for the minimum proportion of weights is reached. Repeat the above procedure until Max is attained. Unload in reverse order to zero, i.e. unload the weights and determine the changeover point. Place the weights back on the plate and remove the substitution material until the same changeover point is reached. Repeat this procedure until the no-load indication is reached.

Consider the example of a weighbridge of accuracy class III and with  $e = 20$  kg and Max equal to 60 000 kg. Appropriate load points should include minimum load (400 kg), 500 e (10 000 kg), all the standard weights (30 000 kg, say), 2000 e (40 000 kg) and maximum capacity. If, however, only 12 000 kg (20% of Max) in test weights is available and the repeatability of the NAWI is sufficiently good, then more load points would be required. These would be 400 kg, 10 000 kg, 12 000 kg, 24 000 kg, 36 000 kg, 40 000 kg, 48 000 kg and at maximum!

#### 4.7 Repeatability

The purpose of this test is different to that of the repeatability check referred to in section 4.4 above, in that the true values of the test loads must be known, since **no individual test result** should exceed the maximum permissible error. Once again, the range of repeatability, **R**, is the greatest difference between the errors evaluated at each load point. The value of **R** should not exceed the respective "absolute" values of the MPE for the load points used in testing.

The number of tests to be done (at about 50% of Max and at or close to Max) is determined by the accuracy class of the NAWI. Normally, no more than 3 weighings for class III and class IIII instruments are necessary. For class I or class II instruments, 6 weighings should be done at each load point.

Readings should be taken when the NAWI is loaded, and when the unloaded NAWI has come to rest between weighings. In the case of a deviation from zero between the weighings, the NAWI should be reset to zero without determining the error at zero. The true zero position need not be determined between the weighings.

#### 4.8 Eccentric Loading

Where a NAWI is tested in one or more of the following manners, the errors of indication should not exceed the maximum permissible error in relation to the test load placed on its load receptor: -

- a) A load corresponding to  $1/3$  of the **maximum load** shall be applied to the four quarter-segments of the load receptor in turn. The maximum load of a NAWI is the sum of its maximum capacity and the corresponding maximum additive tare effect, if any. Otherwise, the maximum load is merely equivalent to the maximum capacity of the NAWI. For example, a mechanical platform machine, with a dial indicator having a maximum capacity of 500 kg and an additive tare device having a maximum capacity of 250 kg, would have a maximum load of 750 kg. The test load would therefore be 250 kg. The presence of the additive tare device should be indicated by the inscription: **T = + 250 kg** marked on the NAWI; or -
- b) On an instrument with a load receptor having more than four points of support:
  1. The number of supports, **n**, shall be determined;
  2. The fraction  **$1/(n-1)$**  of the maximum load shall be applied at each point of support, covering an area of about  **$1/n$**  of the surface area of the load receptor, or, where the points are too close, then the load shall be doubled and distributed over twice that area; or

- a) On an instrument with a load receptor subject to minimal off-centre loading (e.g. tank, hopper etc.), a test load corresponding to one-tenth of the maximum load shall be applied at each point of support; or
- b) On an instrument used for weighing rolling loads (e.g. rail suspension instrument, vehicle scale etc.), a rolling test load corresponding to the usual rolling load, the heaviest and the most concentrated one which may be weighed, but not exceeding 0.8 times the maximum load, shall be applied at different points. These points shall be at the beginning, the middle and the end of the load receptor in the normal driving direction. The positions shall then be repeated in the reverse direction.

It may be appropriate to apply more than one of these tests. For example, a road weighbridge for weighing vehicles could be tested for eccentric error, firstly with static loads placed on the segments of the load receptor associated with the points of support and then, secondly, with a "rolling load", as described above.

Large weights should be used in preference to several small weights. Smaller weights should be placed on top of larger weights, but unnecessary stacking should be avoided within the segment of the load receptor to be tested. The load should be applied centrally in the segment if a single weight is used, but applied over the segment, if several small weights are used.

A small load, not exceeding 10 e should be placed on the load receptor in order to disable any automatic zero-setting or zero-tracking device. This small load should then remain on the load receptor throughout the eccentric loading tests.

#### 4.9 Discrimination

Discrimination tests should be performed with three different loads, e.g. Min,  $\frac{1}{2}$  Max and Max. The tests for the discrimination capability of digital, analogue or non-self-indicating instruments are applied somewhat differently: -

- a) For instruments with digital indicators: -
  1. A test load plus sufficient change point weights (or ten weights of  $\frac{1}{10}d$ , if  $d$  is less than  $e$ ) should be placed on the load receptor;
  2. The initial indication,  $I$ , should be noted;
  3. The change point weights should then successively be removed until the indication is decreased unambiguously by one actual scale interval;
  4. One of the change point weights should then be replaced; and
  5. A load equal to  $1.4 d$  should then be gently placed on the load receptor to give a result increased by one actual scale interval above the initial indication, that is, the indication should change to  $I + d$ ;
- a) For instruments with analogue indicators: -
  1. An extra load, equivalent to the absolute value of the maximum permissible error for the applied load;

2. When gently placed on or withdrawn from the load receptor of the instrument at equilibrium;
  3. Should cause a permanent displacement of the indicating element corresponding to not less than 0.7 times the value of the extra load;
- a) For non-self-indicating instruments: -
1. An extra load, equivalent to 40% of the absolute value of the maximum permissible error for the applied load;
  2. When gently placed on or withdrawn from the instrument at equilibrium;
  3. Should produce a visible movement of the indicating element, which results in it assuming a different position of equilibrium.

#### 4.10 Accuracy of Tare Device and Tare Weighing

A tare device sets the indication to zero when there is a load on the load receptor. It can do so without altering the weighing range for net loads (additive tare device). Alternatively, and commonly, it can reduce the weighing range for net loads (subtractive tare device). The device may function: -

- a) Non-automatically, where the operator balances the load;
- b) Semi-automatically, where the operator presses a "tare button";
- c) Automatically, where there is no intervention by the operator.

Section 4.5 of these notes on checking the accuracy of the zero-setting device also applies here, to some extent. Similarly, the notes relating to linearity and hysteresis testing also apply. However, two distinct tare loads are used in testing, rather than the single test at, or close to zero for determining  $E_0$ . For each of the two tare loads, there will be an associated tare-setting error, **E(tare)**. The two tare-setting errors should be recorded and used in the subsequent tare weighing (linearity and hysteresis) tests. The value of the tare-setting error should not exceed 0.25 e, in common with the zero-setting error  $E_0$ .

The procedure for testing the tare device is as follows: -

- a) With no load on the receptor, set the indication to zero;
- b) Place the first of two tare loads onto the receptor;
- c) Set the indication to zero by means of the tare device;
- d) Add changepoint weights and determine **delta L** (Note: It may be necessary to disable an automatic zero-tracking device with 10 e);
- e) Evaluate the error of the tare-setting, **E(tare)**, using the formula:  
 **$E(\text{tare}) = 1/2 e - \text{delta L}$** ;
- f) Remove the changepoint weights, but not the tare load.

Following on from this procedure, test the tare weighing facility: -

- a) Add test loads throughout the net weighing range;
- b) Evaluate the errors at five load points including, where possible, net Min, net Max and the net error change points, using:  
$$E_c = (I + e - \Delta L - L - E(\text{tare})) < MPE$$
- c) Reduce the test loads to net zero and evaluate the errors at the appropriate load points;
- d) Remove the tare load.

The tare device and tare weighing facility should then be tested once more, this time with the second of the two tare loads. The choice of tare loads is a matter for the Approving Authority but, typically, one tare value of about the minimum capacity of the NAWI and one of about half the maximum would be sensible.

#### 4.11 Other Tests

The Recommendation provides that other tests should be performed in special cases, e.g. "extraordinary construction" or "doubtful results". Neither of these two expressions is defined, but is taken to include: -

- a) For any novel or unusual feature: a test or check on its correct function;
- b) For any interlock or other device which prevents incorrect or fraudulent use of the NAWI: a check on its operation;
- c) For any tests recommended in a Certificate of Pattern Approval: the application of the additional tests;
- d) Where a NAWI is exempt from pattern approval control: conformity assessment tests, such as sensitivity, tilt and other influence factors;
- e) Where the errors of indication are "doubtful": additional load points or further testing;
- f) Where peripherals such as ticket and label printers or remote indicators are connected to a NAWI, or where the NAWI includes a device such as a price computer: appropriate tests and checks for their accuracy.

#### 5.0 Stamping

Initial verification should be testified by one or more verification marks. The form and nature of verification marks will be prescribed by national legislation. These marks can be applied to soft metal plugs by means of stamping dies, or embossed on wire seals, or they can be "security" stickers. These marks may show when the initial verification took place, or when reverification is due. Marks may also be applied to components to make them "tamper evident", that is, to make it clear that they may have been subject to possible unauthorised access, dismantling or maladjustment.

Details of the seals of other Member States can be found on the EMeTAS website.



NATIONAL WEIGHTS AND MEASURES LABORATORY

Stanton Avenue  
Teddington  
Middlesex  
TW11 0JZ  
Tel: +44 (0)20 8943 7272  
Fax: +44 (0)20 8943 7270  
E-mail: [info@nwml.gov.uk](mailto:info@nwml.gov.uk)  
Website: [www.nwml.gov.uk](http://www.nwml.gov.uk)

**dti**

A DTI SERVICE