

RG 7

Accreditation for Inspection Bodies Performing Non-Destructive Testing

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About the United Kingdom Accreditation Service

The United Kingdom Accreditation Service (UKAS) is recognised by the UK Government as the UK national accreditation body responsible for assessing and accrediting the competence of organisations in the fields of inspection, calibration, testing and the certification of systems, products and personnel.

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1 Introduction

- 1.1 (a) The United Kingdom Accreditation Service has traditionally accredited Non - Destructive Testing (NDT) activities against its M10 Standard which meets the requirements of the European standard EN 45001- *General criteria for the operation of testing laboratories*. With the publication of EN 45004 - *General criteria for the operation of various types of inspection bodies* in 1995, it is now considered that EN 45004 is the appropriate standard for accreditation of NDT carried out by Inspection Bodies at manufacturer's premises or at customer sites.

Note: The international standard ISO / IEC 17025 : 2000 *General requirements for the competence of testing and calibration laboratories* (following a transition period) replaces EN 45001 and M10 in March 2002.

(b) UKAS will continue to offer accreditation to ISO/IEC 17025 for laboratories for the NDT scope defined in section 3.2 a) below. Inspection Bodies will have the option of being accredited to EN 45004 for the scopes defined in section 3.2 (a) and / or (b).

- 1.2 The purpose of this publication is to provide an explanation of the UKAS approach to using EN 45004 for the assessment and accreditation of NDT performed by inspection bodies. Where it is considered that EN 45004 requires further guidance, this is given under the relevant clause number. Accredited inspection bodies are required to comply with all of the requirements of EN 45004.

- 1.3 This publication should be read in conjunction with

- * European Standard EN 45004
- * EA-5/ 01 - *Accreditation of Inspection Bodies, Guidelines on the application of EN 45004*
- * EA-4/08 - *Accreditation for Non- Destructive Testing Laboratories* and
- * UKAS publication RG 0 - *Accreditation for Inspection*.

- 1.4 This publication has been produced by UKAS, in consultation with the UKAS NDT Industry Technical Committee.

2 EA-4/08 - *Accreditation for Non -Destructive Testing Laboratories*

- 2.1 UKAS will use the European Co-operation for Accreditation (EA) document EA-4/08 to interpret EN 45004 when applied to NDT methods covered by this publication. EA-4/08 in its present form refers to the clauses of EN 45001.

- 2.2 EA-4/08 in its Section 7 refers to proficiency testing. The NDT laboratories and inspection bodies accredited by UKAS are not required, at present, to participate in proficiency testing.

Note: EA -4/08 was withdrawn by EA on 31 December 2000. UKAS will continue to use the document until a replacement is published by EA.

3 Inspection services (EN 45004, Clause 3.3)

3.1 This RG document covers the inspection of equipment using the following NDT methods.

Radiographic testing

Ultrasonic testing

Magnetic particle testing

Liquid penetrant testing

Eddy current testing

Leak testing

3.2 An inspection body accredited for performing NDT under EN 45004, may perform and report on the following activities;

(a) Testing to appropriately defined standards and procedures, interpretation of test results against the agreed acceptance standards and determination of conformity.

(b) Determination of significance of defects found, based on test results

3.3 The UKAS accreditation schedule will reflect the scope of activity for which the inspection body is accredited. The content of this accreditation schedule should be included in the inspection body's quality manual so that the accredited scope can be clearly distinguishable from other activities that are outside the scope of an inspection body's accreditation.

4 Independence, impartiality and integrity (EN 45004, Clause 4)

4.1 Inspection bodies operating as Type A, B or C bodies as defined in EN 45004 may be accredited for inspection using the NDT methods covered in this publication.

5 On- site assessments of personnel by the inspection body (EN 45004 Clause 7.7 and 7.8)

5.1 Section 7 of EA-5/01 and Section 6 of RG 0 refer to the requirement for on-site assessment of inspection personnel by the Inspection Body. The on-site assessment of personnel will assist the Inspection Body in establishing whether the inspectors' knowledge of the plant they are examining and the environment in which they are working is sufficient to perform their inspection activities effectively and safely. The on-site assessment of personnel will also assist the inspection body to establish that personnel are working to procedures and agreed client requirements.

6 Personnel (EN 45004, Clause 8)

- 6.1 (a) In all instances the Inspection body is required to demonstrate that the personnel qualifications specified in the standard / customer specification / applicable regulations are met.
- (b) Personnel qualifications from an independent certifying body meeting the requirements of EN 473 or of a standard that can be demonstrated to be equivalent to EN 473 are acceptable to UKAS. Where personnel are qualified using an organisational based scheme, the Inspection Body is required to demonstrate that such qualifications comply with recognised schemes such as EN 4179, SNT – TC – 1A or NAS 410, as appropriate.
- 6.2 The inspection body is required to demonstrate that NDT personnel used for examination have the knowledge and experience in the type of defects, which may occur during manufacture, and /or use of the plant examined.
- 6.3 The personnel responsible for determination of significance of defects found, based on test results (i.e. Inspection Bodies accredited to the scope defined in 3.2 (b) of this publication) should, in addition to the appropriate qualifications, experience, training and satisfactory knowledge of the examinations carried out, also have;
- (a) Relevant knowledge of the technology used for the manufacturing of the items tested (materials, products etc.) or the way they are used or intended to be used and of the defects or degradations which may occur during use.
- (b) Knowledge of the general requirements expressed in the legislation and standards; and
- (c) An understanding of the significance of defects found with regard to the normal use of the items, material, product, etc concerned.
- 6.4 The documented guidance for the conduct of NDT personnel as required by clause 8.5 of EN 45004 should cover aspects such as; impartiality, safety, protective clothing, ethics relating to work, human factors, eye sight checks and other such issues.

7 Inspection methods and procedures (EN 45004, Clause 10.3, 10.5)

- 7.1 The inspection body should be aware of any limitations of general procedures based on national standards. Inspection Body should declare and / or report such limitations to the customer if the specified procedures have not been demonstrated to be able to achieve the required level of reliability expected by the customer.
- 7.2 The inspection body should check that the qualification and certification of NDT personnel is appropriate to the inspection to be carried out. This should include checking any limitations in the scope of competence certified and the resulting need for job specific training and authorisation.

- 7.3 Contractual arrangements should reflect the roles & responsibilities of the purchaser of NDT services and the NDT service provider.

8 Records (EN 45004, Clause 12)

- 7.1 The retention period for records should be determined and documented to ensure that customer and regulatory requirements are met.

9 Co-operation

- 9.1 Inspection bodies should be aware of the current developments, research and industry led initiatives associated with improving reliability of NDT technique, for example, the Health & Safety Executive funded Programme for The Assessment of NDT in Industry (PANI) to investigate the performance of in-service NDT used for standard key industrial plant components.

10 References

- 1 M 10, *NAMAS Accreditation Standard* (UKAS Publication)
- 2 EN 45001, *General Criteria for the Operation of Testing Laboratories*
- 3 EN 45004, *General Criteria for the Operation of Various Types of Bodies Performing Inspections*
- 4 ISO / IEC 17025, *General Requirements for the Competence of Testing and Calibration Laboratories*
- 5 EA-5/01 (EAL-G24), *Accreditation of Inspection Bodies – Guidelines on the application of EN 45004*
- 6 RG0, *Accreditation for Inspection* (UKAS Publication)
- 7 EA-4/08 (EAL-G15), *Accreditation for Non- Destructive Testing Laboratories*
- 8 NAS – National Aerospace Standard (NAS Certification & Qualification of Non Destructive Test Personnel)
- 9 ASNT – American Society for Non Destructive Testing
- 10 EN 4179 – Qualification and approval of personnel for non-destructive testing.
- 11 EN 473 – General principles for qualification and certification of NDT personnel
- 12 Programme For The Assessment Of NDT In Industry (PANI). Copies can be obtained from:
Her Majesty's Stationery Office
St Clements House
2-16 Colegate
Norwich NR3 1BQ