

**PERSONNEL CERTIFICATION FOR NON-DESTRUCTIVE TESTING OF  
AIRCRAFT, ENGINES, COMPONENTS AND MATERIALS**

**1. General**

- 1.1 This Notice advises the DCA requirements for the qualification of Non-Destructive Testing (NDT) personnel, which shall be appropriately qualified for the particular non-destructive test in accordance with European Standards EN 4179<sup>1</sup> or equivalent as meeting the requirements of EN 4179, and Approved Organization's written Practice / Procedures for the authorization of NDT personnel.
- 1.2 This Notice clarifies relating to the acceptability of organization based schemes for the qualification of NDT personnel in accordance with European NDT personnel requirements, and is intended to recognize the competence of Level 3 qualified personnel.
- 1.3 The term NDT is used throughout this Notice to include, but not be limited to, all the common methods identified in EN4179 and shall also be applicable to all other NDT methods used by Approved Organizations. Other methods, not identified in EN4179, and their associated procedures will be subject to approval by the DCA under the applicable airworthiness standard. Definitions of other key terms used throughout this Notice are contained in Paragraph 7.

**2. Procedures for the Qualification of NDT Personnel**

- 2.1 All Approved Organization involved in any aspect of NDT shall develop and maintain procedures for the qualification and authorization of their NDT personnel in accordance with EN4179. The organization's procedures and/or written practice as defined by EN4179 shall be approved by the Nominated level 3. The procedures/written practice should normally be published as a separate document and cross-referenced in the appropriate exposition, manual or quality management system as applicable.
- 2.2 Qualification of NDT. Levels and their functions should be as follows.
- 2.2.1 LEVEL 1 Issued to NDT personnel who are capable to perform preparations for NDT inspections in accordance with the documented procedures. He is not allowed to sign off any relevant maintenance documents. Level 2 verifies and/or reads the inspection results.

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<sup>1</sup> EN 4179- Qualification and approval of personnel for non-destructive testing.

NOTE: All references to Standards within this Notice are to be taken as referring to the latest issue and are available from the British Standards Institute, 389 Chiswick High Road, London, W 44 AL, UK.

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- 2.2.2 LEVEL 2 Issued to NDT personnel who perform the inspections in accordance with documented procedures. He is allowed to sign off relevant maintenance related documents. He can evaluate and interpret imperfections and inspection results, convert manufacturer data into work instructions and train and supervise Level 1.
- 2.2.3 LEVEL 3 Issued to personnel with college level knowledge regarding NDT methods and techniques and capable to train and supervise Level 1 and 2. Level 3 personnel are responsible for the training and examination of Level 1 and 2 personnel.
- 2.3 DCA also recognizes the UK national scheme for Personnel Certification in Non-Destructive Testing (PCN) administered by the British Institute of Non-Destructive Testing (BINDT) as meeting the requirements of EN4179.
- 2.4 NDT Personnel Certification does not relieve an Organization of its responsibility to authorize staff to perform and certify work. Such Authorizations are to be granted in accordance with the Organization's Quality Procedures and be subject to audit.
- 2.5 In all cases the Organization's procedures for the training, examination and certification of NDT personnel should be subject to independent audit and review.
- 2.6 In an Approved Maintenance Organization an authorization for NDT shall be issued to personnel based on results of qualification examinations and certificate he has received. All levels of NDT personnel shall be re-certified periodically in accordance with evidence of continued satisfactory performance and re-examination in general written or specific written exam as determined by the AMO's Nominated Level 3 NDT.
- 2.7 Level 1 and 2 personnel shall be trained, qualified and re-qualified every 3 year by the Level 3 of AMO's employee or other DCA approved sources. Level 3 employees are re-qualified every 5 years by DCA acceptable NDT Sources. Yearly vision examination for all levels is required. When personnel did not work on a certain technique for a joint period more than six month, they must re-qualify on that technique, and the Quality Manager (Head of Quality) of AMO monitors the hands on performance.

### 3. NOMINATED LEVEL 3

- 3.1 Approved Organizations must satisfy that they have adequate numbers of suitably qualified staff to discharge the responsibilities of the approval.
- 3.2 Approved Organizations shall nominate in writing, supported with evidence of independent qualification, an individual responsible to the Accountable Manager, for the technical supervision of NDT. This individual will hold NDT qualification at **NDT Level 3 in the Aerospace Sector** and will be referred to as the Nominated Level 3.

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This position shall be identified within the Organization's Exposition, and any change in this position advised to the DCA.

3.3 The DCA recognizes the following independent qualifications as appropriate for the position of Nominated Level 3:

EN4179 Level 3 as administered by a BINDT accredited outside Agency

PCN/AERO Level 3

American Society for Non-Destructive Testing (ASNT) Level 3

Such an individual must also demonstrate evidence of specific knowledge and experience appropriate to the Organization's scope of work.

3.4 Where the Nominated Level 3 is not qualified in all NDT methods used by the Organization, then additional personnel necessary to provide coverage shall be named in the exposition or quality manual and shall hold NDT Level 3 certification issued under those schemes detailed in Section 3.3.

3.5 The DCA may accept person external to the Organization as the Nominated Level 3, provided written agreement exists between the individual and the Organization setting out the individual's responsibilities within the Organization. DCA will also need to be satisfied that an externally contracted Level 3 can commit to provide sufficient man-hours to cover the technical supervision of NDT.

NOTE: Where an individual is employed by another organization, the agreement should include the consent of the external organization contracting out the services of the particular Level 3 person.

3.6 As a nominated individual, the Nominated Level 3 must be provided with the necessary co-operation (access to facilities, company procedures, training records, audits and inspection reports etc.) to allow that person to carry out their function under the Approval.

3.7 The Terms of Reference for the Nominated Level 3 to discharge his/her responsibilities shall include:

(a) Identify any additional NDT qualified Level 3 personnel necessary for coverage when the Nominated Level 3 is not qualified in all NDT methods used by the Organization;

(b) Identify any additional Level 3 personnel necessary to provide adequate day-to-day coverage depending on the size/facilities of the Organization;

(c) Approve the Organization's NDT procedures and written practice for the Training and Qualification of NDT personnel as meeting this requirement and EN4179 as appropriate;

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- (d) Review the Organization's written practice every 12 months to ensure that any changes in the regulations, applicable standards and the Organization itself are reflected;
- (e) Ensure that NDT procedures are reviewed every 12 months;
- (f) Ensure that technical audits (both system and product) are carried out or supported by appropriately qualified personnel every 12 months in order to ensure compliance with the organization's written practices/ procedures and this requirement, and to ensure that the acceptable standard of inspection is achieved. These audits shall form part of the approved organization's internal quality management system.

#### **4. Inspections and Certification of Inspections**

- 4.1 NDT inspections shall be carried out by personnel approved in accordance with the Organization's written practice or procedures. Where NDT procedures and part specific instructions are specified by the organization responsible for the design and/or manufacture of the aircraft, material, structure or component, then these must be used, except where change is permitted and authorized as defined in Paragraph 5 of this Notice.
- 4.2 Where non-mandatory inspections are to be undertaken, for which the responsible design/manufacturing organization has not specified part specific NDT procedures, then the NDT method, technique, procedure and instruction shall be prepared in accordance with Paragraph 5 of this Notice and approved by a Level 3 holder qualified in the applicable method.
- 4.3 Normally, certification of inspections will be made by persons who hold NDT Level 2 or Level 3 qualification. However, where an inspection task is determined by the Nominated Level 3 to have clearly defined acceptability and rejection criteria requiring no interpretation, then certification may be carried out by an authorized NDT Level 1 as detailed within the written practice.
- 4.4 Where a level 3 is required to carry out and certify an NDT inspection then this person must either hold current Level 2 certification in those methods, or be able to provide evidence that they have successfully completed an appropriate Level 2 practical examination and maintained continuity in the application of practical testing as defined in the referenced standards and detailed in the written practice before the issuance of an authorization.

#### **5. NDT Techniques and Instructions and their Approval**

- 5.1 NDT techniques, procedures and instructions, published and specified by the Type Certificate holder in NDT Manuals, Service Bulletins, and Approved Drawings etc.

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constitute airworthiness data.

- 5.2 Where the airworthiness data published by the Type Certificate holder permits changes (e.g selection of equipment model, probe type etc.) then such changes must be authorized in writing by a Level 3 qualified in the appropriate method.
- 5.3 Any other change requires the written agreement of the Type Certificate holder responsible for the design of the product/structure before such a change is implemented.
- 5.4 NDT Instructions prepared by a Level 2 holder shall be approved by a Level 3 holder qualified in the applicable method. Co-ordination between the Level 3 Holder and responsible Type Design Organization must be maintained to ensure that the selected NDT inspection provides an appropriate level of defect sensitivity and probability of detection to the intended application.
- 5.5 The procedure for the control of all NDT techniques, procedures and instructions, including their preparation and authorization within any DCA Approved Organization, shall be detailed in the Organization's approved Quality Procedures.

## **6. Suppliers and Sub-contractors to Approved Organizations**

- 6.1 An Organization performing maintenance on any aircraft or component for which it is approved, where NDT inspections are required, they may on occasions be granted the privilege within their scope of work to utilize sub-contractors working under the quality system. Where sub-contracting includes NDT processes, the exposition and written practice shall define how the Organization ensures that the training and authorization of the sub-contractors NDT personnel is controlled and satisfies.
- 6.2 An Organization utilizing suppliers and sub-contractors where NDT processes are employed shall detail within their written practice how the Organization ensures that training and approval of NDT personnel in such suppliers or sub-contractors is controlled.

## **7. Definitions**

***Aerospace Sector:*** A particular section of industry or technology where specialized NDT practices are used requiring specific aerospace product related knowledge, skill, equipment or training.

***Authorization (of NDT procedures):*** The act of signifying approval of NDT procedures by a Nominated Level 3.

***Authorization of NDT personnel/Personnel Approval:*** The authority of persons to perform NDT on behalf of an employer based on a written statement issued by the Approved Organization on the recommendation of the Nominated Level 3 attesting to the individual's competence as specified within the certificate.

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**Authorization of Certifying Staff:** The authority of NDT personnel to certify the completion of tasks in accordance with approved design data via Form One, issued by the Approved Organization. All Form One certifying staff shall be referenced in the MOE, or cross referenced to a recognized register/database for certifying staff, with sample signatures/stamp number.

**Certificate:** Document issued under the rules of either of the certification systems defined in this Notice (EN4179) indicating that adequate confidence is provided, that the named person is competent to perform specified Non-Destructive Testing.

**Industry Sector:** A particular section of industry or technology where specialized NDT practices are used requiring specific product related knowledge, skill, equipment or training. An industrial sector may be interpreted to mean a product (welds, castings ...) or an industry (aerospace, petrochemical...).

**NDT Technique:** A category within an NDT method (e.g. ultrasonic immersion technique).

**NDT Procedure:** A written description of all essential parameters and precautions to be observed when applying an NDT technique to a specific test, following an established standard, code or specification.

**NDT Instruction:** A written description of the precise steps to be followed in testing to an established standard, code, specification or NDT procedure.

**NDT Method:** One of the disciplines of non-destructive testing (e.g. ultrasonic, radiography, etc.) within which different techniques may exist.

**Nominated Level 3:** An independently certified Level 3 certificate holder responsible to the Chief Executive or Accountable Manager for the airworthiness aspects of NDT work undertaken by that Organization.

**Qualification:** The proven ability of NDT personnel to meet the requirements of a given specification in terms of physical requirements, training, knowledge and experience necessary to perform the applicable NDT method.

**Qualification Examination:** An examination administered by an independent certifying body (e.g. PCN), or by a body authorized within the employer's EN 4179 compliant written practice, which demonstrates the general, specific and practical knowledge of the candidate.

**Type Certificate:** Type Certificate includes Type Certificates, Supplementary Type Certificates.

**Written Practice:** The procedure that describes an employer's requirements and methodology for controlling and administrating the NDT personnel qualification and authorization / approval process.