



CIVIL AVIATION DIRECTIVE – 8704

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

NDT PERSONNEL

CIVIL AVIATION AUTHORITY OF MALAYSIA

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Introduction

In exercise of the powers conferred by section 24O of the Civil Aviation Act 2019 (Act 3), the Chief Executive Officer makes this Civil Aviation Directive (CAD) 8704 – Personnel Certification for Non-Destructive Testing of Aircraft, Engines, Components and Materials pursuant to Regulation(s) 21, 31 and 32 of the Malaysian Civil Aviation Regulations (MCAR) 2016.

This Directive provides the requirement pertaining to Non-Destructive Testing and for any matters connected therewith.

This Directive is published by the Chief Executive Officer under section 24O of the Civil Aviation Act 1969 (Act 3) and come into operation on 1st February 2022.

Non-compliance with this CAD

Any person who contravenes any provision in this CAD commits an offence and shall on conviction be liable to the punishments under Section 24O (2) of the Civil Aviation Act 1969 (Act 3) and/or under Malaysia Civil Aviation Regulation 2016.



(Captain Chester Voo Chee Soon)
Chief Executive Officer
Civil Aviation Authority of Malaysia

Civil Aviation Directive components and Editorial practices

This Civil Aviation Directive is made up of the following components and are defined as follows:

Standards: Usually preceded by words such as “*shall*” or “*must*”, are any specification for physical characteristics, configuration, performance, personnel or procedure, where uniform application is necessary for the safety or regularity of air navigation and to which Operators must conform. In the event of impossibility of compliance, notification to the CAAM is compulsory.

Recommended Practices: Usually preceded by the words such as “*should*” or “*may*”, are any specification for physical characteristics, configuration, performance, personnel or procedure, where the uniform application is desirable in the interest of safety, regularity or efficiency of air navigation, and to which Operators will endeavour to conform.

Appendices: Material grouped separately for convenience but forms part of the Standards and Recommended Practices stipulated by the CAAM.

Definitions: Terms used in the Standards and Recommended Practices which are not self-explanatory in that they do not have accepted dictionary meanings. A definition does not have an independent status but is an essential part of each Standard and Recommended Practice in which the term is used, since a change in the meaning of the term would affect the specification.

Tables and Figures: These add to or illustrate a Standard or Recommended Practice and which are referred to therein, form part of the associated Standard or Recommended Practice and have the same status.

Notes: Included in the text, where appropriate, Notes give factual information or references bearing on the Standards or Recommended Practices in question but not constituting part of the Standards or Recommended Practices;

Attachments: Material supplementary to the Standards and Recommended Practices or included as a guide to their application.

It is to be noted that some Standards in this Civil Aviation Directive incorporates, by reference, other specifications having the status of Recommended Practices. In such cases, the text of the Recommended Practice becomes part of the Standard.

The units of measurement used in this document are in accordance with the International System of Units (SI) as specified in CAD 5. Where CAD 5 permits the use of non-SI alternative units, these are shown in parentheses following the basic units. Where two sets of units are quoted it must not be assumed that the pairs of values are equal and interchangeable. It may, however, be inferred that an equivalent level of safety is achieved when either set of units is used exclusively.

Any reference to a portion of this document, which is identified by a number and/or title, includes all subdivisions of that portion.

Throughout this Civil Aviation Directive, the use of the male gender should be understood to include male and female persons.



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1 General

1.1 Citation

- 1.1.1 These Directives are the Civil Aviation Directives 8704 – Personnel Certification for Non-Destructive Testing of Aircraft, Engines, Components and Materials, issue 01/Revision 00, and comes into operation on 1st February 2022.
- 1.1.2 This CAD 8704 – Personnel Certification for Non-Destructive Testing of Aircraft, Engines, Components and Materials, Issue 01/Revision 00 will remain current until withdrawn or superseded.
- 1.1.3 This Directive contains the additional standards, requirements and procedures and shall be read together with CAD 8 – Airworthiness of Aircraft.

1.2 Applicability

- 1.2.1 The following persons shall be subject to this Directive—
- a) a person who holds a certificate of approval under regulation 21 of the Civil Aviation Regulations 2016 pertaining to manufacture of aeronautical product; and
 - b) a person who holds a certificate of approval under regulation 31(1)(b) and regulation 32 of the Civil Aviation Regulations 2016.

1.3 Revocation

- 1.3.1 This CAD revokes Airworthiness Notice 52 – Personnel Certification for Non-Destructive Testing of Aircraft, Engines, Components and Materials, issue 5 dated 1 October 2002.

1.4 Definitions

- 1.4.1 In this Directive, unless the context otherwise requires—

Aerospace Sector means a particular section of industry or technology where specialised Non-Destructive Testing (NDT) practices are used requiring specific aerospace product related knowledge, skill, equipment or training;

Authorisation (of NDT personnel/Personnel Approval) means the authority of persons to perform NDT on behalf of an employer based on a written statement issued by the Approved Organisation on the recommendation of the Nominated Level 3 attesting to the individual's competence as specified within the certificate;

Authorisation (of NDT procedures) means the act of signifying approval of NDT procedures by a Level 3 authorised in the method;



NDT Instruction means a written description of the precise steps to be followed in testing to an established standard, code, specification or NDT procedure;

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

NDT Procedure means 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 Technique means a category within an NDT method (e.g. ultrasonic immersion or ultrasonic contact testing, etc.);

Nominated Level 3 means 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 Organisation;

Qualification means 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 means an examination administered by an independent examination body, or by a body authorised within the employer's EN4179 compliant written practice, which demonstrates the general, specific and practical knowledge of the candidate; and

Written Practice means the procedure that describes an employer's requirements and methodology for controlling and administering the NDT personnel qualification and authorisation/approval process.

2 Requirement

2.1 General

2.1.1 The qualification of Non-Destructive Testing (NDT) personnel, which shall be in accordance with EN4179 (See note 1 and 2), and the organisation's written practice/procedures for the authorisation of NDT personnel.

2.1.2 The term NDT is used throughout this CAD to include, but not be limited to all the common methods identified in EN4179 and shall be applicable to all NDT Methods used by the organisations. Other methods and their associated procedures will be subject to approval by CAAM under the applicable airworthiness approval standard.

Note 1. – EN4179 - Qualification and approval of personnel for non-destructive testing.



Note 2. – All references to Standards within this CAD are to be taken as referring to the latest issue and are available from the British Standards Institute 389 Chiswick High Road, London, W4 4AL.

2.2 Procedures for the qualification of NDT Personnel

- 2.2.1 All organisations involved in any aspect of NDT shall develop and maintain procedures for the qualification and authorisation of their NDT personnel in accordance with EN4179. In either case, the organisation's procedures and/or written practice as defined by EN4179 shall be approved by the Nominated Level 3.
- 2.2.2 CAAM currently recognises the national scheme for Personnel Certification in Non-Destructive Testing (PCN/AERO) administered by the British Institute of Non-Destructive Testing (BINDT).

2.3 Qualified staff

- 2.3.1 Organisations undertaking NDT in accordance with CAD 8601 must satisfy CAAM that they have adequate numbers of suitably qualified staff to discharge the responsibilities of the approval.
- 2.3.2 Organisations shall nominate in writing, supported with evidence of certification, an individual responsible to the Accountable Manager, for the technical supervision of NDT. This individual will hold independent qualification at NDT Level 3 in the appropriate Aerospace Sector and will be referred to as the 'Nominated Level 3'. This position shall be identified within the organisation Exposition/Manual, and any change in this position advised to the CAAM.
- 2.3.3 The CAAM recognises the following independent qualifications as appropriate for the position of Nominated Level 3:
- a) EN4179 Level 3 as administered by BINDT
 - b) PCN/AERO Level 3
 - c) American Society for Non-Destructive Testing (ASNT) for Level 3
- 2.3.4 Where the Nominated Level 3 is not qualified in all NDT methods used by the Organisation, then additional NDT Level 3 necessary to provide coverage shall hold NDT Level 3 certification issued under paragraph 2.3.3 above.
- 2.3.5 Additional NDT Level 3 Certification holders shall be listed in the organisation Exposition/Manual or reference made in the Exposition/Manual to other documents containing the list of NDT Level 3 holders. Any changes to this list are to be notified to CAAM through appropriate amendments.



- 2.3.6 CAAM may accept persons external to the organisation as the Nominated Level 3, provided written agreement exists between the individual and the organisation setting out the individual's responsibilities within the organisation.
- 2.3.7 The Term 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 organisation;
 - b) Identify any additional NDT Level 3 personnel necessary to provide adequate day-to-day coverage depending on the size/facilities of the organisation;
 - c) Approve the organisation's NDT procedures;
 - d) Approve the organisation's written practice for the training and qualification of NDT personnel in accordance with EN4179 and this CAD;
 - e) Review the organisation's written practice every 12 months to ensure that any changes in the regulations, applicable standards and the organisation itself are reflected;
 - f) Ensure that NDT procedures are reviewed every 12 months; and
 - g) Ensure that technical audits (both system and product) are carried out or supported by appropriately qualified personnel every 12 months.

2.4 Inspection and Certification of Inspections

- 2.4.1 NDT inspections shall be carried out by personnel approved in accordance with the organisation's written practice and procedures. Where NDT procedures are specified by the organisation responsible for the design and/or manufacture of the aircraft, material, structure or component, then these shall be used, except where change is permitted and authorised as defined in paragraph 2.5 of this CAD.
- 2.4.2 Where non-mandatory inspections are to be undertaken, for which the responsible design/manufacturing organisation has not specified NDT procedures, then the NDT method, technique, procedure and instruction shall be prepared in accordance with paragraph 2.5 of this CAD and approved by a NDT Level 3 holder qualified in the applicable method.
- 2.4.3 Normally, certification of inspections will be made by persons who hold NDT Level 2 or above authorisations. 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 authorised Level 1, as detailed within the written practice.
- 2.4.4 Where an NDT 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 NDT Level 2 practical examination and maintained continuity in the application of practical testing as defined in EN 4179 and detailed in the written practice.

2.5 NDT Techniques and Instruction and their Approval

- 2.5.1 NDT techniques, procedures and instructions, published and specified by the applicable Design Approval Holder in NDT Manuals, Service Bulletins, Approved Drawings etc. constitute airworthiness data.
- 2.5.2 Where the airworthiness data published by the Design Approval Holder permits changes (e.g. selection of equipment model, probe type etc.) then such changes must be authorised in writing by an NDT Level 3 qualified in the appropriate method.
- 2.5.3 Any other change requires the written agreement of the Design Approval Holder responsible for the design of the product/structure before such a change is implemented.
- 2.5.4 NDT Instructions prepared by an NDT Level 2 holder shall be approved by a NDT Level 3 holder qualified in the applicable method. The procedure for the control of all NDT techniques, procedures and instructions, including their preparation and authorisation, shall be detailed in the organisation's Exposition/Manual.

2.6 Suppliers and sub-contractors to approved organisation

- 2.6.1 An organisation utilising suppliers and sub-contractors where NDT processes are required, shall detail within their Exposition/Manual how the organisation ensures that training and approval of NDT personnel in such suppliers or sub-contractors is controlled.

2.7 Organisation outside Malaysia

- 2.7.1 For organisations located outside Malaysia, CAAM may consider local national qualifications alternative to EN4179 provided that they are demonstrated to be equivalent, have the approval of the local airworthiness regulating authority, and CAAM is satisfied that no degradation of airworthiness standards is likely to occur as a result of the acceptance of such alternative arrangements.



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