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The Civil Aviation Authority of Thailand

GUIDANCE MATERIAL FOR NON-DESTRUCTIVE TESTING (NDT) QUALIFICATION

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Air Chief Marshal



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ABBREVIATIONS

AMC	Acceptable Means of Compliance
AMO	Approved Maintenance Organisation
AMM	Aircraft Maintenance Manual
ANDTBF	Aerospace Non-Destructive Testing Boards Forum
ASNT	American Society for Non-destructive Testing
CAAT	The Civil Aviation Authority of Thailand
C/S	Certifying Staff
CM	Compliance Monitoring Manager
cm	Centimetre
CMM	Component Maintenance Manual
CDCCL	Critical Design Configuration Control Limitations
D1	Maintenance Organisation Rating D1 — Non-Destructive Testing
DOA	Design Organisation Approval
EASA	European Union Aviation Safety Agency
EFNDT	European Federation for Non-Destructive Testing
EN4179	European Standard 4179 (the latest revision)
ET	Eddy Current Testing
EWIS	Electrical Wiring Interconnection System
FTS	Fuel Tank Safety
GM	Guidance Material
HF	Human Factors (per TCAR PEL Part-66 Module 9)
IRT	Infrared / Thermographic Testing
ISO	International Organisation for Standardisation
L1	Level 1 (NDT personnel qualification level — per EN 4179)
L1-Limited	Level 1 - Limited (restricted scope per EN 4179)
L2	Level 2 (NDT personnel qualification level — per EN 4179)
L3	Level 3 (NDT personnel qualification level — per EN 4179)
MOE	Maintenance Organisation Exposition (per TCAR AIR Part-145 §145.A.70)
MT	Magnetic Particle Testing
NAS 410	National Aerospace Standard 410 (The latest revision)
NDT	Non-Destructive Testing
NDTWP	NDT Written Practice of the AMO
OEM	Original Equipment Manufacturer
PT	Penetrant Testing
RL3	Responsible Level 3 (per EN 4179)
RT	Radiographic Testing
SMS	Safety Management System
S/S	Support Staff
SB	Service Bulletin
ST	Shearography Testing
STCH	Supplemental Type Certificate Holder
TCH	Type Certificate Holder
UT	Ultrasonic Testing

RECORD OF AMENDMENTS

Issue	Revision	Date	Amendment Summary
01	00	27-Jul-2026	First Issue regarding the Notification of the Civil Aviation Authority of Thailand on Repair Station Certificate Requirements B.E. 2563 (2020) (TCAR 8 Part 145) and Notification of the Civil Aviation Authority of Thailand on Acceptable Means of Compliance: AMC to Repair Station Certificate Requirements B.E. 2563 (2020) (AMC to TCAR 8 Part 145)

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0. INTRODUCTION

0.1 Scope and Applicability

The Civil Aviation Authority of Thailand (CAAT) is the Competent Authority for maintenance organisations¹ that are involved in the maintenance of Thai registered aircraft and components intended for fitment thereto as established by TCAR AIR Part-145, 145.A.1 General. CAAT is therefore responsible for the final approval of these maintenance organisations and for establishing procedures detailing how TCAR AIR Part-145 applications and approvals are managed.

This Guidance Material (GM) is applicable to TCAR AIR Part-145 applicants and TCAR AIR Part-145 maintenance organisations regardless of whether their principal place of business is located within Thailand or other countries. The provisions of this GM are complementary to the maintenance organisation certification requirements detailed in TCAR AIR Part-145 and do not supersede or replace any associated regulatory requirements.

0.2 Purpose

This user guide is designed to be used by Approved Maintenance Organisations (AMOs) and the assigned inspector when

1. The maintenance organisation is defining the processes and procedures related to:
 - ☐ qualification and certification of personnel performing NDT, personnel directly responsible for the technical adequacy of the NDT methods used, who approve NDT procedures and/or work instructions, or who provide technical NDT support or training
 - ☐ issue of an authorisation to personnel to sign off NDT tasks
 - ☐ issue of certifying staff authorisation to NDT certifying staff under D1 rating
2. Assigned inspector is:
 - ☐ evaluating by sampling the compliance of the AMO with TCAR AIR Part-145 and the implementation of qualification and approval of personnel for non-destructive testing in accordance with European Standard 4179 (EN4179), and National Aerospace Standard 410 (NAS410), or equivalent standard which is acceptable to the CAAT.

0.3 Associated Instructions

CAAT has developed associated provisions (guidance, forms, checklists, and templates) that detail specific matters, which need to be considered as an integral part of this GM. This information is available on the CAAT website (www.caat.or.th)

0.4 Communication

All documents and correspondence between the maintenance organisation and CAAT shall be in English. The official e-mail is air-amo@caat.or.th.

¹ The terms “Maintenance Organisations” and “Repair Stations” should be read interchangeably in this Guidance Material.

0.5 References

- Air Navigation Act B.E. 2497
- Requirements of the Civil Aviation Authority of Thailand No. 2 on Repair Station Certificate
- Requirements of the Civil Aviation Authority of Thailand No. 5 on Foreign Repair Station Certificate
- Requirements of the Civil Aviation Authority of Thailand No. 22 on Reporting of Civil Aviation Occurrences
- Thailand Civil Aviation Regulation on Maintenance Organisation Requirement (TCAR AIR PART-145)
- Acceptable Means of Compliance to Thailand Civil Aviation Regulation on Maintenance Organisation Requirement (AMC to TCAR AIR Part-145)
- Thailand Civil Aviation Regulation - Personnel Licensing Part Aircraft Maintenance Engineer Licence (TCAR PEL Part - 66)
- Acceptable Means of Compliance and Guidance Material to TCAR PEL Part – 66 (AMC/GM to TCAR PEL Part - 66)
- Guidance Material for Development of Maintenance Organisation Exposition (MOE) (CAAT-GM-AIR-501)
- Guidance Material for Maintenance Organisation Management Personnel (CAAT-GM-AIR-505)
- Guidance Material for Demonstration of 6/24 Months Maintenance Experience (CAAT-GM-AIR-509)
- EN4179 Aerospace series - Qualification and approval of personnel for non-destructive testing (The latest revision)
- NAS 410 Revision 6 Certification and Qualification of Non-Destructive Test Personnel (The latest revision)
- EN ISO 18490 Non-destructive testing — Evaluation of vision acuity of NDT personnel (The latest revision)
- EN ISO 9712 Non-destructive testing — Qualification and certification of NDT personnel (The latest revision)
- Aerospace NDT Boards Forum documents ANDTBF_06 latest issue - Guidance training course outlines ANDTBF_10, the latest issue - General Knowledge of other methods ANDTBF_12 latest issue- Proposal for annual maintenance assessment
- Aerospace NDT Boards Forum documents ANDTBF action table
- Aerospace NDT Boards Forum documents ANDTBF_02 latest issue- Aerospace NDT board forum members and representatives

1. GENERAL

1.1 Objectives of this GM

145.A.30 (f) requires that “The organisation shall ensure that personnel who carry out and/or control a continued airworthiness non-destructive test of aircraft structures and/or components are appropriately qualified for the particular non-destructive test in accordance with the European Standard 4179 (EN4179); Qualification and approval of personnel for non-destructive testing, National Aerospace Standard 410 (NAS410); Certification and Qualification of Non-Destructive Test Personnel or equivalent standard which is acceptable to the CAAT. Additional information is provided at Acceptable Means of Compliance (AMC), AMC1 145.A.30(f). In addition, 145.A.30 (e) requires the approved organisations to establish and control the competence of personnel involved in any maintenance, (...) in accordance with a procedure and to a standard agreed by the CAAT.

The objectives of this GM are to provide guidance on:

- the process to implement EN4179 to qualify the personnel performing NDT, personnel directly responsible for the technical adequacy of the NDT methods used, who approve NDT procedures and/or work instructions, or who provide technical NDT support, training and examination;
- the information contained in the NDT written practice to show compliance with EN4179;
- the process to issue and monitor the authorisation of the NDT staff to sign off the NDT tasks they have performed; and,
- the process to issue and monitor the certifying staff authorisation to NDT staff under D1 rating.

1.2 Understanding NDT qualification, certification and authorisation in an AMO

EN4179 is an employer-based qualification and staff certification system, this means that the qualification of the NDT staff employed by a particular AMO must follow the procedures of that AMO.

If the NDT staff leaves AMO A and joins AMO B, then:

- the NDT certification issued by AMO A is revoked; and,
- the NDT staff must meet the qualification and certification requirements of AMO B.

In this GM the term “NDT qualification” is used to refer to the process to satisfy the required training, experience and examination as specified in EN4179 and described in the NDT Written Practice (NDTWP). (See part 2 of this GM)

In this GM the term “certification” is used to refer to the verification made by the RL3 (Responsible Level 3) on behalf of the AMO. A certification statement will be issued to declare that the NDT candidate has passed the vision examination and meets the necessary training, experience and examination for a particular level in accordance with the NDTWP. (See section 2.10 of this GM)

In this GM the term “AMO authorisation” is used to refer to the authorisation issued by the AMO quality department to the NDT staff to perform specific NDT functions and/or sign-off the performance of a NDT task, or in the case “Certifying Staff (C/S) authorisation” to perform and issue a release to service for the particular NDT tasks performed. (See part 4 of this GM)

The qualification process of the NDT staff includes NDT qualification and AMO qualification.

- NDT qualification process shall give the person the skills, training, knowledge, examination and experience required to perform NDT.

- AMO qualification process shall give the person the skills, knowledge and experience required to perform the assigned tasks at the AMO.

1.3 NDT written practice, Maintenance Organisation Exposition (MOE), NDT activity manual and work instruction

(In example, EN4179:2026, item 3.40, 3.42, 4.1)

The **NDTWP** shall describe the NDT qualification and certification process, this includes:

1. the procedures for the qualification and certification of the NDT staff;
2. the functions assigned to the different levels of NDT staff
3. the conditions for the validity of the NDT staff certification
4. the procedures for the suspension and revocation of the NDT staff certification.

The NDTWP should be a stand-alone document and include a statement indicating the approval by the RL3.

The **MOE** shall describe the AMO qualification process, this includes:

1. the general AMO training and experience requirements for NDT sign-off staff shall be included in MOE 3.17
2. the general AMO training and experience requirements for NDT C/S shall be included in MOE 3.9

An AMO performing NDT inspections should have:

1. detailed description of the NDT facilities, equipment, tooling, materials, etc.
2. procedures for system performance check and/or calibration requirements of NDT equipment and tooling;
3. NDT procedures and work instructions in use by the AMO for the inspection of aircraft/parts.

This information may be consolidated in an **NDT activity manual** or may be included in other documents in use in the AMO, for example: MOE, tool control and calibration procedures, etc.

A **Work Instruction** details the process, technique and testing parameters necessary to perform an NDT inspection in a particular aircraft/component. The work instruction shall specify amongst other things the method, technique to be used for inspection, the part preparation for inspection, the equipment and material for inspection, the area to be inspected, the processing parameters (such as dwell time, drying time, temperature, time, current, etc.), if applicable the acceptance criteria, etc.

A work instruction is required when the Original Equipment Manufacturer (OEM) / Type Certificate Holder (TCH) / Supplemental Type Certificate Holder (STCH) / Design Organisation Approval (DOA) maintenance data provides only general information about the inspection procedures to be used. The work instruction shall be approved by a Level 3 (L3) for the particular method designated by the AMO and it shall comply with the guidance provided by the OEM/TCH/STCH/DOA maintenance data.

Work instructions issued by the AMO fall under Documentation/Maintenance Instructions Issued by the maintenance organisation, therefore MOE 2.8 should describe the information to be included in the work instructions, the revision of the work instructions and the approval of the work instructions.

ASTM standards for the different NDT methods provide indications on the contents of work instructions. This can be used as guidance for developing work instructions (for example see Standard Practice for Liquid Penetrant Testing, ASTM E1417 section 6.7)

Document	Approved process
NDT Written Practice	Approved by RL3 Approved by AMO Compliance Monitoring manager (CM) Approved by CAAT (direct approval)
MOE	Approved by CAAT
CAAT MOE Supplement	Accepted by CAAT
Work instruction	Approved by a L3 in the method

1.4 NDT interpretation and evaluation of indications and documenting inspection results in AMO (In example, EN4179:2026, item 3.30, 3.21)

This GM speaks about interpretation and evaluation of indications, these two terms are defined in EN4179.

During an NDT inspection, the NDT staff may detect several indications. Interpretation is the determination of whether these indications are relevant or non-relevant.

After an indication is categorized as relevant it must be subject to evaluation.

The evaluation of indications shall be performed taking into account the criteria in the maintenance data and/or work instruction. The evaluation will determine:

- Whether the indication meets a specified acceptance/ rejection criteria; and/or,
- The characteristics of the indication such as size, location, etc.

The evaluation of the relevant indications shall be documented, meaning that the NDT staff performing the evaluation should indicate in the maintenance records the result of the evaluation.

Example 1: Component Maintenance Manual (CMM) 32-40-yy subtask 32-40-yy-aa. MT inspection of bolts p/n: 12345

Perform a magnetic particle inspection in accordance with SPM 20-40-xx-bb on each bolt. Discard a bolt that has a crack.

The NDT staff performing the evaluation of the relevant indications will determine which bolts have a crack and must be discarded. The NDT staff will document in the work card how many bolts and if applicable which bolts (p/n, s/n) have been discarded.

Example 2: Aircraft NDT manual 51-96-yy subtasks 51-96-yy-aa. ET inspection to determine location and dimension of cracks in fuselage skin area

The NDT staff performing the evaluation of the relevant indications will determine which indications are cracks. The NDT staff will document in the work card the location and dimension of each crack.

1.5 Outside Agency

(In example, EN4179:2026, item 3.28, 4.3.3)

An outside agency is a company or organisation outside the AMO, who provides NDT services to implement the requirements of EN4179, such as training and examination of NDT personnel, and under the control of a National Aerospace NDT Board acceptable to the CAAT. The outside agency can also provide RL3 services, meaning that the AMO may nominate as RL3 a person qualified as L3 by the outside agency. Within the context of this GM, if the AMO wants to use an outside agency for training, examination or RL3 services, the outside agency has to be under the control of a National Aerospace NDT Board acceptable to the CAAT.

National Boards (NANDTB) that provide NDT qualification and/or examination services, consultants, and self-employed individuals are included in this definition.

1.6 Use of EN4179

This GM has been developed taking as reference the EN4179. AMOs are strongly advised to familiarise themselves and progressively adapt their procedures in accordance with the current revision of NDT standards.

1.7 Structure of this GM

This GM is divided into the following chapters:

- Chapter 0: Introduction
- Chapter 1: General
- Chapter 2: Guidance on the implementation of EN4179
- Chapter 3: NDT written practice.
- Chapter 4: AMO qualification
- Chapter 5: Appendices

2. GUIDANCE ON IMPLEMENTATION OF EN4179

This section provides guidance to the implementation of EN4179, which is one of the NDT standards acceptable to the CAAT. Organisations whose NDT staff is certified in accordance with NAS410 or an equivalent NDT standard acceptable to the CAAT may use guidance available for the implementation of these standards or simply use this section as is.

2.1 NDT Methods

(In example, EN4179:2026, item 1.2.3, 3.22, 3.38, 4.1.3, 4.2)

This chapter provides guidance for the implementation of the qualification and certification requirements of EN4179 for the following common NDT methods:

- Eddy current testing (ET)
- Penetrant testing (PT)
- Magnetic particle testing (MT)
- Radiographic testing (RT)
- Shearography testing (ST)
- Thermographic testing (IRT)
- Ultrasonic testing (UT)

This guidance material does not include guidance for qualification procedures for emerging methods, each particular case shall be discussed with the assigned inspector.

The AMO must identify the different techniques within the methods that they are going to use. The table included in Appendix 5: Draft guidance definition of methods and techniques is a draft document produced by Aerospace Non-Destructive Testing Boards Forum (ANDTBF) to show examples of how the AMO may identify the methods/ techniques. The table is in draft status not approved by the ANDTBF yet. The RL3 should define the methods and techniques to reflect the work in the AMO.

2.2 NDT with direct readout instruments and go/no-go test equipment

(In example, EN4179:2026, item 3.9)

An NDT inspection performed using a direct readout instrument or a “go/no go” test equipment may not require that the person performing the inspection is qualified as L1, L2 in accordance with EN4179. EN4179 defines direct readout instruments as “Instruments that physically display measurements in dimensional or electrical units (e.g. Inches, millimetres or %IACS.) either as digital readout or an analog display, such as a scale/pointer configuration, or that display go/no-go outputs, and do not require special skills or knowledge to set up the instrument or inspection and do not involve adjusting parameters or signal displays such as gates, delays, gain, or phase to obtain valid measurements. For example, common direct readout instruments include basic ultrasonic thickness gauges without an oscilloscope display and eddy current coating thickness gauges”.

If the AMO performs NDT inspections in an aircraft/component using a direct readout instrument and the use of this instrument is indicated in the maintenance data (CMM, Aircraft Maintenance Manual (AMM), Service Bulletin (SB), repair instructions,...), then the AMO does not require an NDT approval (nor D1 neither NDT in the course of maintenance) and the person performing this inspection does not need to be qualified as L1 or L2 in accordance EN4179.

If the AMO performs NDT inspections in an aircraft/component using a direct readout instrument but the use of this instrument is not indicated in the maintenance data of the aircraft/ component, for

example the component repair data indicates “determine remaining thickness using ultrasonic inspection, remaining thickness should be more than XYZ inches”, in this case the AMO requires an NDT approval (either D1 rating or NDT in the course of maintenance). A L3 of this AMO qualified for the particular method shall develop a work instruction applicable to this component explaining:

- ☐ how to perform thickness measurement using a particular direct readout instrument; and,
- ☐ the qualification of the person performing this inspection (it may not need to be qualified as L1 or L2 in accordance with EN4179)

Person performing inspections using direct readout instruments will need to be qualified for the use of such instrument in accordance with a procedure established by the AMO in the MOE.

2.2.1 NDT go/no-go test equipment

A particular case of direct readout instrument is a go/no go test equipment. This go/no-go test equipment should be understood as:

- a test equipment which does not require special NDT knowledge/ skills to set-up or adjust the equipment;
- the equipment inspects the part and performs the interpretation and evaluation of indications; and,
- the equipment provides to the equipment operator a clear indication whether or not the result of the evaluation is accepted or reject, such as for example a PASS/ NO PASS, or RED/GREEN indication.

Depending on how this NDT inspection process using a go/no-go test equipment is established, the equipment operator may or may not need NDT qualification in accordance with EN4179. The AMO should do a case-by-case evaluation and discuss it with the assigned inspector.

2.3 Levels of qualification and certification

(In example, EN4179:2026, item 5.1, 5.2, 5.3, 5.4, 5.5, 5.6)

EN4179 defines four basic levels of qualification and certification: L1-Limited, L1, L2, and L3. This section includes guidance for the L1, L2, and L3.

The qualification and certification of L1-limited can be referred to the latest revision of EN4179. The AMO shall approach the allocated inspector to discuss this specific case. The AMO must have qualification and certification procedures for each NDT method and level of certification intended to be used at the organisation as defined in the scope of work. For example, if the AMO is going to perform ET using NDT L2 and L3 staff, then the maintenance organisation only needs to develop qualification and certification procedures for ET in these two levels.

The AMO must document the trainees participating in a training program for an NDT method in the process to become L1 or directly L2. The AMO must develop a training program for each trainee identifying:

- ☐ when the training program starts and ends,
- ☐ the method, level, techniques in the training program
- ☐ the sequence and duration of the different phases of the training, such as practical training to obtain experience, general training, examination, etc.

During the training program the trainees shall:

- ☐ obtain experience under the direct observation of a Level 2 or Level 3 in the same method,
- ☐ obtain experience under the direct observation of a Level 1 only when approved by the responsible Level 3,

- ☐ not make accept or reject decisions,
- ☐ not independently conduct tests,
- ☐ not independently perform any other NDT function

For L1, L2, and L3 staff the AMO may assign some or all of the following functions to each level of certification for each method for which the person is certified. The NDTWP shall describe the functions assigned to each level/method.

The L1 individuals shall be competent to:

- ☐ set up and standardize equipment in accordance with approved work instructions;
- ☐ conduct system performance checks in accordance with the applicable instructions issued by the AMO;
- ☐ process parts and document result in accordance with approved work instructions;
- ☐ carry out any necessary preparation of parts before or after inspection in accordance with approved work instructions;
- ☐ receive guidance or supervision from a certified L2 or L3 in that method when necessary;
- ☐ in specific cases the RL3 may approve that the L1 individuals perform interpretations and evaluations of indications on specific product(s) for acceptance or rejection in accordance with approved work instructions. The NDTWP shall detail the cases and/or tasks for which the L1 can perform the evaluation of indications. The practical examination of the L1 individuals certified to interpret and evaluate shall include an assessment of the proficiency interpreting and evaluating indications².

The L2 individuals shall be competent to:

- ☐ set up and standardize equipment in accordance with approved work instructions;
- ☐ conduct system performance checks in accordance with the applicable instructions issued by the AMO;
- ☐ process parts in accordance with approved work instructions;
- ☐ carry out any necessary preparation of parts before or after inspection in accordance with approved work instructions;
- ☐ interpret and evaluate for acceptance or rejection, and document the results;
- ☐ provide the necessary guidance and/or supervision to trainees and L1 personnel;
- ☐ when specified in the NDTWP, the L2 functions can include developing work instructions. Such work instructions shall require final approval by a L3 certified in the method. The NDTWP shall include an assessment of the proficiency developing work instructions. This assessment shall be done by a L3 in the method, and it shall be properly documented.

The L3 individuals shall be competent to assume the following functions:

- ☐ assuming technical responsibility for the NDT facility and staff;
- ☐ select the method and technique for a specific inspection, however when the approved maintenance data indicates a specific inspection the L3 cannot deviate from this specific inspection;
- ☐ preparing and verifying the adequacy of procedures and work instructions;
- ☐ approve NDT procedures and work instructions for technical adequacy;
- ☐ providing or directing training and examination of personnel when the L3 is nominated instructor or examiner by the RL3;

² See practical examination section

- ☐ if the L3 is certified as L2 then, he can also perform the functions of the L2;
- ☐ if required by the AMO, audit the contracted outside agency to verify the correct implementation of the contract between the AMO and the outside agency;
- ☐ provide support to auditors of the AMO to perform product audits and the implementation of NDT procedures

An individual cannot certify to L3 without prior certification to L2 in the method. This means that a candidate to be certified as L3 in a particular method in an AMO must demonstrate that he/she is certified to L2 in the method.

2.4 Responsible level 3

(In example, EN4179:2026, item 3.34, 4.3.2)

The AMO must have a responsible level 3 (RL3), the nomination and approval of the RL3 must follow Guidance Material for Maintenance Organisation Management Personnel (CAAT-GM-AIR-505). The RL3 may be either:

1. a natural person employed/contracted by the AMO, thereafter called “**internal RL3**”; or
2. a natural person working for the outside agency contracted by the AMO to provide the RL3 services, hereinafter called “**external RL3**”.

2.4.1 Requirements for the internal RL3

The candidate for internal RL3 shall be qualified as L3 at least one of the methods used by the AMO. The qualification as L3 must satisfy the requirements of the NDTWP where this person is going to act as internal RL3. This requires that this person can show the required training, experience and examination to L3. The required examination shall have been administered by an outside agency.

If he/she is not qualified as L3 in all the methods used by the AMO, then he/she will not be able to assume some RL3 functions for that method and the AMO would need to identify another L3, qualified as L3 by an outside agency, to perform those functions when necessary.

In accordance with EN4179, an individual cannot certify to L3 without prior certification to L2 in the method. This means that L3 must demonstrate that they meet the certification requirements to L2 in the method at the time of the first qualification to L3 for the AMO where they will be certified as L3. This also applies to a person who is going to be nominated as internal RL3.

Example: Candidate 1 is going to be employed by company A to be the new internal RL3. Candidate 1 was the internal RL3 in company B, what does candidate 1 need to do to become internal RL3 in company A?

- Candidate 1 needs to satisfy the L3 qualification requirements in company A, meaning candidate 1 needs to demonstrate that he/she satisfies the training, experience and examination requirements of company A NDTWP for L3.
- Candidate 1 and company A should assess whether his/her previous training, experience, general examination and other NDT methods examination in company B are equivalent to the requirements of training, experience, general examination and other NDT methods examination in company A. If the assessment is positive then candidate 1 can credit his/her training, experience, general examination and other NDT methods examination.
- Candidate 1 shall receive NDT specific refresher training in accordance with company A NDTWP.
- Candidate 1 shall pass vision acuity examination in accordance with company A NDTWP

- Candidate 1 shall provide evidence that he/she passed the specific and practical examination to L2 in accordance with EN4179. (in company A or in company B)
- Candidate 1 shall pass specific and practical examination to L3 in an outside agency in accordance with company A NDTWP and EN4179
- Candidate 1 and company A shall issue the certification statement for L3.

Evidence to be provided for an internal RL3:

1. Evidence of specific and practical examination to L2 at the time of the first qualification as L3 in the method in an Part 145 AMO in accordance with EN4179.
2. Evidence of training as L2 or evidence that previous training can be credited in accordance with EN4179 and the NDTWP.
3. Certificate of general examination to L2 or evidence that general examination can be credited in accordance with the NDTWP.
4. Experience records, such as logbook or similar, to demonstrate that he/she has acquired the minimum experience requirements for L2 and L3. If the experience was acquired before joining the AMO then the candidate RL3 must demonstrate that his/her previous experience is acceptable in accordance with the NDTWP
5. Certificate of General L3 examination and additional other methods NDT examination in accordance with the NDTWP or evidence that they can be credited in accordance with the NDTWP.
6. Certificate of specific and practical L3 examination in accordance with the NDTWP Evidence of other training, qualification and competency assessment in accordance with the Guidance Material for Maintenance Organisation Management Personnel (CAAT-GM-AIR-505). (i.e. MOE, Human Factor (HF), Safety Management System (SMS), etc, and FTS and EWIS, when relevant)

Credit system for initial qualification to Level can be referred to the latest revision of EN4179.

2.4.2 Requirements for external RL3

The candidate for RL3 shall be qualified as L3 in accordance with EN4179 by the outside agency in at least one of the NDT methods used by the AMO. If he/she is not qualified as L3 by the outside agency in all the methods used by the AMO, then he/she will not be able to assume some RL3 functions for that method and he/she would need to identify another L3, qualified as L3 by the outside agency, to perform those functions when necessary.

Evidence to be provided for an external RL3:

1. Agreement between the AMO and the outside agency contracted to provide RL3 services, training and examination.
2. Documentation issued by the outside agency showing that:
 - the person possesses a L3 certification in accordance with EN4179 indicating the methods; and,
 - the specific and practical examination cover sufficient scope regarding the codes, standards and practices used by the AMO.
3. Evidence of other training, qualification and competency assessment by AMO in accordance with the Guidance Material for Maintenance Organisation Management Personnel (CAAT-GM-AIR-505). (i.e. MOE, HF, SMS, etc, and FTS and EWIS, when relevant)

2.4.3 Functions of the RL3

- A. The RL3 is responsible for NDT qualification and certification process, this means, for all the methods the RL3 shall:
- ☐ establish the written practice explaining the levels of qualification and certification in the organisation, the training, experience and examination requirements and procedures, and where/ how the training and examination will be performed;
 - ☐ ensure that all necessary conditions for training and examination are established and implemented;
 - ☐ retain written and practical examinations;
 - ☐ designate examiners and/or instructors providing training and examination;
 - ☐ issues the certification statements to the NDT staff in accordance with the NDTWP;
 - ☐ if required, the RL3 shall designate outside agencies used for training and examination;
 - ☐ if required, the RL3 should audit in conjunction with the AMO quality system the outside agencies providing training and/or examination services; and
 - ☐ maintain overall control and cognizance over the NDT training and examination program, including designating or approving qualified Examiners, instructors and outside agencies.
- B. The RL3 shall be capable of assuming the overall technical responsibility for the NDT facility and processes. This means that for the method(s) for which he/she is qualified as L3 under EN4179 by an outside agency, he/she:
- ☐ Ensures the adequacy of the NDT facilities and materials in use at the organisation.
 - ☐ Ensures equipment adequacy, including adequate program for the maintenance, service and calibration of the equipment.
 - ☐ Approves the use of alternative tools in the particular NDT method in accordance with the AMO MOE procedures.
 - ☐ Establishes the process controls in accordance with applicable standards (i.e. system performance check in accordance with ASTM E1444 for MT inspections)
 - ☐ Approves the work instructions developed for the performance of a particular inspection (when necessary) in the method.
 - ☐ Performs the annual proficiency review of the NDT staff at the organisation or nominates another L3 in the method to perform the annual proficiency review.
 - ☐ Makes the assessment of previous training and previous experience of the NDT staff joining the AMO and identifies the scope of training required to be completed prior certification.

For the method(s) for which he/she is not a L3 qualified under EN4179 by an outside agency, the RL3 shall designate a L3 qualified under EN4179 by an outside agency in the particular method to perform the functions listed in B above.

2.5 NDT Qualification procedures

The NDT qualification procedures must describe the NDT training, NDT experience, NDT examination required for a particular NDT method and level. These qualification procedures shall be included in the NDTWP. The NDTWP must also describe the qualification process for additional technique(s) as described in 2.12.

The NDTWP and any amendment to the NDTWP shall be approved by the RL3. After approval by the RL3, the NDTWP shall be submitted to the AMO Compliance monitoring manager for acceptance. The AMO Compliance monitoring manager shall submit the NDTWP to CAAT for notification as associated manual or procedure.

2.6 NDT training

(In example, EN4179:2026, item 3.16, 3.20, 6.1, 6.1.1, 6.1.2, 6.1.3, 6.1.4, 6.1.5, 6.2, 6.2.2, 6.3)

Each NDT candidate shall receive formal training, this training may be conducted prior or in conjunction with the “on the job training” to gain NDT experience. The training will have a general part, specific part and practical part and it shall be conducted in accordance with training course outlines detailed in the NDTWP and approved by the RL3. The training can be delivered internally by instructors approved by the RL3 or it can also be delivered externally by an outside agency designated by the RL3 (see point 2.6.3)

In both cases, the RL3 is responsible to assess if the training delivered meets the training course outlines defined in the NDTWP and determine if there is a need of additional training (for example specific training). This assessment shall be documented.

2.6.1 Training course outlines

The RL3 must establish a training course outline for each method and for each level of qualification planned to be used at the AMO (L1, L2). The training course outline shall specify:

- ☐ the training syllabus.³
- ☐ the duration of the training. This must follow the minimum required duration established in EN4179
- ☐ the training method, for example theoretical or practical, classroom or distance learning, etc.;
- ☐ reference to the training material to be used during the training such as student notes, training samples specifications, industry standards, maintenance data used for the specific training, etc.;
- ☐ a list of references from which the training material is derived;
- ☐ the test samples used for the practical exercises.

2.6.2 Training facilities

Both theoretical and practical training shall be delivered in adequate facilities well equipped with equipment and training aids, models, samples, etc. to ensure that all aspects of the training course requirements are met. The following characteristics shall be taken into account:

- ☐ The size and structure of facilities shall ensure protection from the prevailing weather elements and proper operation of all planned training on any particular day.
- ☐ Fully enclosed appropriate accommodation separate from other facilities shall be provided for the instruction of theory and the conduct of written examinations. The accommodation environment shall be maintained such that students are able to concentrate on their studies or examination as appropriate, without undue distraction or discomfort.
- ☐ The maximum number of students undergoing knowledge training during any training course shall not exceed 12.
- ☐ The size of accommodation for examination purposes shall be such that no student can read the paperwork or computer screen of any other student from his/her position during examinations.
- ☐ Practical training shall be performed in adequate facilities or in the actual maintenance environment such as the NDT workshop, using NDT equipment normally used for NDT inspections. Sufficient number of representative test samples should be available for practical training.

³ The syllabus must follow EN4179, for example, ANDTBF in document ANDTBF/06, the latest issue which is published in <https://www.efndt.org/Services/Document-Store?EntryId=15421>

When the training is performed internally then the training facilities shall be identified in the NDTWP. If the training is performed by an outside agency contracted by the AMO, then the NDTWP shall indicate the address of the facilities.

2.6.3 Instructors

The training can be delivered internally by instructors designated and approved by the RL3 or it can also be delivered externally by an outside agency contracted by the AMO to provide training services.

For internal training

The RL3 shall approve the instructors for the different training courses. In this case, the instructors to be used for the training shall:

- ☐ Be qualified as L2 or L3 under EN4179 or an equivalent level in the equivalent standard (National Aerospace NDT) acceptable to CAAT.
- ☐ Have a minimum of 5 years' working experience as L2 or L3 or equivalent level in the equivalent standard acceptable to CAAT.
- ☐ Be familiar with the specifications and standards used by the AMO to be able to deliver the specific part.
- ☐ Have the skills and knowledge to plan, organize, and present classroom training and practical exercises in accordance with approved course outlines.

For training delivered by an outside agency

The RL3 shall designate in the NDTWP the outside agency contracted to deliver the training (general training, specific refresher training, etc.).

2.6.4 Training certificate

At the completion of the training, a training certificate shall be issued detailing, as a minimum:

- ☐ name of the trainee;
- ☐ date and place of birth of the trainee;
- ☐ name of the AMO;
- ☐ training course with reference to method, level, training course outlines and the NDTWP;
- ☐ date and place where the training took place;
- ☐ duration (hours) of the training;
- ☐ if the training is performed internally, this certificate is issued by the RL3.
- ☐ if the training is performed by an outside agency, then the training certificate shall be issued by the outside agency.

2.6.5 Previous training and equivalent training

Training credits can be given to in the following cases:

- ☐ the person was previously certified under EN4179 or NAS410 in another Part-145 AMO; or
- ☐ the person was previously certified under EN4179, NAS410 or the equivalent national aerospace NDT standard acceptable to CAAT in an organisation holding a national approval for maintenance or production; or
- ☐ the previous training is properly documented (training course outlines, training certificate, etc.)

The RL3 shall compare the previous training with the NDT training course outlines included in the MOE or NDTWP to assess the equivalency between them and determine the missing portions of training that the person must receive. This assessment shall be documented, and it shall include as a minimum:

1. the previous training certificates;
2. the previous training course outlines (syllabus, duration, type of training (theoretical / practical, classroom/distance-learning)) and the training provider of the previous training;

3. the equivalency to the current training outlines; and,
4. the missing portions of training that the person must receive.

Any person credited with previous training must always receive the missing portions of the training and NDT specific refresher training.

2.6.6 NDT specific refresher training

This NDT specific refresher training is required for any person credited with **previous training** and for any person who has passed formal training at the AMO, but who has not received its NDT certification statement from the RL3 within 12 months after the formal training.

The specific refresher training shall be conducted in accordance with a training course outline detailed in the NDTWP and approved by the RL3. This training must cover the AMO specific products, equipment set-up, operation and standardization, specific operating procedures, applicable techniques.

2.6.7 Health and safety training

The AMO must provide health and safety training to every person undergoing NDT “on the job training” or seeking certification to perform NDT tasks. The health and safety training shall be performed at the beginning of the “on the job training” or, for persons credited with previous experience, before the certification.

The AMO must establish training outlines for health and safety training including syllabus, duration, method of training (classroom, eLearning, self-study). The syllabus must consider:

1. the requirements for the handling of hazardous substances,
2. accident prevention and safe working practices,
3. compliance with local health and safety regulations.

The health and safety training outlines must be included in the NDTWP. The health and safety training can be provided by any person or organisation designated by the RL3.

Additionally, for radiography, the AMO shall provide specific health and safety training on the hazards and safety requirements associated with ionizing radiation and the national applicable national regulations and laws.

The syllabus, duration, method of training and instructors / training organisation must comply with the applicable national regulations and must be included in the NDTWP.

2.7 NDT examination

(In example, EN4179:2026, item 3.3, 3.14, 3.26, 3.35, 3.39, 4.1.4, 7.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.6.1, 7.1.6.2, 7.1.6.3, 7.1.6.4, 7.2, 7.2.1, 7.2.2, 7.2.3, 7.2.4)

Every person seeking NDT certification for a particular level/method/technique shall pass NDT examination. The NDT examination for L1, L2 and L3 shall include general examination, specific examination and practical examination for the particular method/level. Additionally, for L3 it shall include an “additional other NDT methods” examination on the general knowledge of other methods as per the guidance in paragraph 2.7.2.

The NDT examination can be performed internally by the AMO or externally by an outside agency designated by the RL3. In no case can an examination be administered by oneself or by a subordinate. (Sample of Examination report can be found at Appendix 4: Example examination report)

When the examination is performed internally then the NDTWP shall include:

- ☐ the requirements to be met by the examination;
- ☐ the procedures for the performance of general, specific and practical examinations; and
- ☐ the list of examiners

When the examination is performed by an outside agency, then the NDTWP shall include:

- ☐ the name of the outside agency; and,
- ☐ the requirements to be met by the examination.

The examination of the RL3 must be performed externally by an outside agency designated by the RL3 as explained in 2.4.

Previous NDT examination in another maintenance organisation cannot be credited except for general examination as described in 2.7.1, meaning that every person seeking NDT certification in an AMO must pass (internal or external) specific and practical examination with that AMO.

2.7.1 General examination

The general examination shall comply with EN4179, this means that for each method and level:

- ☐ the general examination shall be closed book examination;
- ☐ the minimum number of questions for L1, L2 and L3 is 40;
- ☐ the questions can be open questions or multiple-choice questions as defined in the NDTWP;
- ☐ the level of the questions should be adequate to the certification level (L1, L2, L3);
- ☐ the candidate must achieve a minimum score of 70%.

The general examination can be credited if the candidate has a current American Society for Non-destructive Testing (ASNT) or International Organisation for Standardisation (ISO) 9712 NDT certificate for the particular method at the appropriate level. The acceptance of these certificates to credit for the general examination must be described in the NDTWP. In the case that ASNT or ISO9712 certificate is used instead of a general examination, the score to be given to the general examination shall be 80%.

2.7.2 “Additional other NDT methods” examination for the L3

The “additional other NDT methods examination” shall be administered to a person seeking examination for L3 for the first time. This is a one-time examination⁴.

2.7.3 Specific examination

The specific examination shall comply with EN4179, this means that for each method and level:

- ☐ The specific examination must be specific for the work to be authorised, this means it shall cover the requirements and use of the specifications, codes, equipment, operating procedures and test techniques the candidate may use in the performance of his/her duties in the AMO
- ☐ The specific examination shall be open book but questions utilizing such material shall require understanding of the information contained therein rather than merely finding its location.
- ☐ The minimum number of questions for L1, L2 and L3 is 30
- ☐ The specific examination can be multiple choice question or open questions as defined in the written practice.

⁴ The guidance issued by the ANDTBF in document ANDTBF_10 General Knowledge of Other Methods as required by EN4179, the latest issue which is published in <https://www.efndt.org/Services/Document-Store?EntryId=15421>

- ☐ The level of the questions should be adequate to the certification level (L1, L2, L3)
- ☐ The candidate must achieve a minimum score of 70%

2.7.4 Practical examination

The practical examination for L1, L2 shall comply with EN4179, this means that for each method and level:

- ☐ The practical examination is performed using documented test samples.
- ☐ The candidate is not familiar with the test samples used in the examination.
- ☐ The practical examination must include minimum 2 test samples with at least 1 test sample per technique for which certification is sought⁵.
- ☐ The practical examination shall assess the proficiency in:
 - the use of work instructions,
 - the use and standardization of equipment and materials,
 - the adherence to procedural details,
 - processing parts,
 - the interpretation and evaluation of indications for L2, and for L1 only if he/she is going to be authorized to accept or reject parts, and
 - the documentation of results.
- ☐ For each test sample the candidate must achieve a minimum score of 70% and must detect all discontinuities in the test sample.
- ☐ When the L2 functions include developing work instructions then the L2 must pass an assessment performed by a L3 in the method.

The practical examination for L3 shall comply with EN4179, this means that for each method:

- ☐ The practical examination will consist of preparation of an NDT procedure including work instruction appropriate to the AMO work
- ☐ The practical examination shall take place in conjunction with the general and/or specific examination.
- ☐ The practical examination shall assess the following aspects of the NDT procedure/ work instruction:
 - Technical accuracy
 - Technical content
 - Clarity of the procedure/ work instruction
- ☐ The candidate must achieve a minimum score of 70%.

When the L3 is processing parts and interpreting and evaluating indications and documenting results, then the L3 must pass the same practical examination as for L2 staff.

A sample template checklist to be used for the marking of the practical examination for L1 and L2 is included in Appendix 1: Example marking checklist for practical examination L1 / L2. This template provides only a reference and the RL3 must detail the particular subjects to be evaluated for each method during the practical examination.

When the examination is performed by an outside agency, the marking of the examination falls under the control of the outside agency.

⁵ For L2, the practical examination may include test samples without discontinuities but at least 2 test samples of the total required for the practical examination must include discontinuities

2.7.5 Nomination of Examiners

If the examination is performed internally, the administration and grading of the examination is the responsibility of the RL3 or examiner L3. The RL3 may nominate examiners for each method used in the organisation. The examiners must be certified as L3 under EN4179 for that particular method in the AMO. The RL3 can be an examiner for the methods for which he/she is certified as L3 under EN4179.

The tasks of the examiner for the method for which he/she is nominated:

- ☐ preparation of questions and master answers for the general and specific examination
- ☐ selecting and documenting test samples for the practical examination
- ☐ ensure the security of the examination
- ☐ marking of examinations

The list of designated examiners must be included in the NDT written practice.

If the examination is performed by an outside agency, then the nomination of examiners falls under the control of the outside agency.

2.7.6 Preparation of questions and master answers

The AMO may use open questions, multiple choice questions or true/false questions.

When the examination is performed internally, the examiner must prepare the examination questions and master answers prior to the examination.

When preparing the examination paper, the examiner must ensure that:

- ☐ The questions are adequate in accordance with EN4179 for the type of examination (general/ specific), method and level
- ☐ There is a master answer for each question
- ☐ The questions included in the examination paper cover all the subject material in the method.
- ☐ The questions included in the examination paper were not used in the past 12 months.

When the examination is performed by an outside agency, the preparation of questions and master answer falls under the control of the outside agency.

2.7.7 Test samples

A test sample is a part⁶ containing one or more known and documented natural or artificial defects. A test sample can be used to provide practical training, or it can be used for practical examination. However, a test sample used for training or for the annual proficiency review cannot be used for examination.

When the examination is performed internally, the RL3 must identify and list the test samples used for training and the test samples used for examination. The test samples used for examination must be stored at the AMO in a secure location under the control of the RL3. All samples must have a documented record of the defects to be detected and their location.

⁶ In some cases, such as for example RT, an image can be used as test sample to train or to assess the candidate ability to interpret results.

The test samples can be actual aircraft / engine / component parts, or they can be fabricated test parts, and there should be dedicated test sample for each NDT method. The AMO may use scrap parts or unserviceable parts previously inspected at the AMO as test samples for training, but they cannot be used as test samples for examination unless the AMO has a system in place to ensure that the candidate is not familiar with the part. (for example, the part was scrapped > 5 years before it is used examination, the part is reworked by the AMO, etc)

The AMO shall establish a system to record when each test sample was used for examination and ensure that a particular test sample will not be used in any examination for the next 12 months and it will not be used in any future examination for the same candidate.

When the practical examination is performed by an outside agency, the management of test samples is under the control of the outside agency.

2.7.8 Internal Examination report

After internal examination, an examination report shall be issued with the following information, as a minimum (See sample in Appendix 4: Example examination report):

- ☐ Name and Surname of the candidate
- ☐ Name of the AMO
- ☐ Applicable NDTWP and standards used for the examination
- ☐ NDT Method, Level
- ☐ Exam Date(s)
- ☐ Certificate Issue Date
- ☐ Score for the General examination and specific examination, if applicable
- ☐ Technique used and score obtained for every test sample in the practical examination, if applicable
- ☐ Score for the practical L3 examination if applicable.
- ☐ Signature of the L3 examiner
- ☐ Any additional information relevant to the method/ technique such as material (metal, composite, etc.), application (NDT in welds, structures, etc.)

2.7.9 Additional considerations for internal examination

Internal examination can be administered by the RL3 to all the NDT staff in the AMO for all the methods for which he/she is a L3 qualified by an outside agency in accordance with EN4179. Examination for the RL3 can only be administered by an outside agency.

Examination of other examiners nominated by the RL3 can only be performed by the RL3 or by an outside agency. Cross-examination, meaning that examiner#1 administers and grades the examination of examiner#2 and examiner#2 administers and grades the examination of examiner#1, is not permitted.

Examination by a subordinate is not permitted, for example if the NDT workshop manager is a L2 and the L3 examiner is a subordinate of the NDT workshop manager, then the examination of the NDT workshop manager cannot be performed by the subordinate L3.

2.7.10 Use of an outside agency to provide examination

When the examination is performed externally by an outside agency, the outside agency must follow the NDTWP requirements and the examination shall be administered considering the NDTWP and the information, codes, specifications provided by the AMO.

The NDTWP shall include:

- ☐ The name of the outside agency,
- ☐ Type of the examination is open book/ closed book
- ☐ The number of questions for each method/ level
- ☐ The minimum number test samples used for the practical examination
- ☐ The minimum score required to pass each individual examination.
- ☐ The minimum average score to be eligible for certification

The AMO must provide all necessary information to the outside agency before the examination, such as:

- ☐ The name of the candidate, the method and techniques, the level of certification sought
- ☐ The type of examination (general, specific, practical, additional "other NDT method" for L3)
- ☐ The NDTWP
- ☐ The AMO work instructions, specifications, codes, equipment, operating procedures and test techniques the candidate may use in the performance of his/her duties with the employer.

After the examination, an examination report must be issued by the outside agency stating as a minimum:

- ☐ The name of the outside agency administering the examination
- ☐ Name and Surname of the candidate
- ☐ Name of the AMO
- ☐ Applicable NDTWP and standards used for the examination
- ☐ NDT Method, Level
- ☐ Exam Date(s)
- ☐ Name of examiner
- ☐ Certificate Issue Date
- ☐ Score for the General examination, specific examination
- ☐ Technique used and score obtained for every test sample in the practical test
- ☐ Any additional information relevant to the method/ technique such as material (metal, composite, etc.), application (NDT in welds, structures, etc.)

2.7.11 Re-examination

Any person failing any general, specific or practical examination shall receive additional training before taking re-examination. The RL3 or the examiner shall assess the failed examination and determine which areas are deficient. Based on that assessment the RL3 or examiner shall prepare the syllabus of the additional training that needs to be delivered before re-examination.

The assessment performed by the RL3/ examiner and the syllabus of the additional training must be documented in a report and must be kept together with the re-examination records.

For the general and specific re-examination, the examination paper must contain at least 25% different questions than the initial examination paper used and for the practical re-examination the test samples used must be different from the initial examination performed.

2.7.12 Scoring

To be eligible for certification or recertification, the following 2 conditions must be satisfied in the scoring:

1. The person shall achieve the following minimum scores on each individual examination:
 - General examination: 70%
 - Specific examination: 70%
 - Additional other NDT methods examination for L3: 70%
 - Practical examination L3 (preparing procedure): 70%

- Practical examination L1, L2, and if applicable L3: 70% and detect all mandatory discontinuities, flaws or conditions specified by the L3.
- 2. The person shall have an average score of minimum 80%. The average score is calculated as the arithmetic mean of all the individual examination scores.

In the particular case where Condition 1 is satisfied, for example, where all examination scores are 70% and the overall average score is 70%, but Condition 2 is not satisfied because the required minimum average score of 80% has not been achieved, the Responsible Level 3 (RL3) shall review and assess the failed examination area(s) and/or any examination(s) with low scores to identify the specific areas of deficiency and determine which examination(s) are required to be re-performed by the candidate.

Based on the outcome of this assessment, the RL3 or the examiner shall prepare an additional training syllabus covering the identified deficient areas. The additional training shall be completed before the candidate is permitted to undertake the re-examination.

The re-examination should be limited to the examination area(s) identified as deficient or requiring improvement. Re-examination is not required for examination area(s) where the candidate has achieved a score of more than 80%, unless otherwise determined necessary by the RL3 based on the assessment outcome.

2.7.13 Visual acuity examination

Every person undergoing NDT “on the job training” or seeking NDT certification for a particular method/ level in an AMO shall pass an examination for visual acuity. This examination consists of near vision examination and colour perception examination. Both the near vision examination and the colour perception examination shall be administered by trained personnel designated by the RL3 or by qualified medical personnel.

The visual acuity examination requirements are as follows:

1. Near vision examination shall be performed every 12 months. The method can be:
 - a. Tumbling E in accordance with the latest revision of ISO 18490
 - b. 20/25 (Snellen) at 16” (40.64 cm) $\pm$ 1” (2.54 cm) in at least one eye, natural or corrected
 - c. Jaeger No 1 at not less than 12” (30.48 cm) in at least one eye, natural or corrected.
2. Colour perception to be performed every 60 months (5 years), they must show that the person is able to differentiate the colours used in the NDT methods involved. It can be:
 - a. Ishihara test for colour-blindness
 - b. Other colour perception examination methods.

The method of examination and the persons authorized to administer the visual examination shall be included in the NDTWP.

The results of the examination shall be documented in a report to indicate the person performing the visual acuity examination, the date, the method used for the near vision examination and for the colour perception examination and the result of both examinations and if visual correction was worn to pass the visual examination. An example of visual acuity report is included in Appendix 2: Example visual acuity examination report.

The near vision test and the colour perception tests are considered to expire at the end of the month in which they are due.

2.8 Experience

(In example, EN4179:2026, item 3.15, 3.25, 6.3, 6.3.1, 6.3.2)

Every person seeking NDT certification for a particular method / level in an AMO shall have enough experience to assure that they are capable of performing the duties of the level for which certification is sought.

Experience is the actual performance of an NDT task or part of a task.

- The experience may include processing of practical test samples in the workshop, performing equipment set-up and system performance checks, part preparation before and after inspection, recognition, interpretation and evaluation of indications under appropriate supervision.
- At least 30% of the experience shall be obtained by the performance of NDT tasks in the actual working environment.
- For L1 and L2 without previous L1 certification, the experience shall be acquired under the supervision of a L2 or L3.
- For L2 with previous L1 certification, the experience shall be a combination of actual performance of L1 tasks and performance of L2 tasks under the supervision of a L2 or L3.

The minimum experience for L1, L2, L3 are included in EN4179. The RL3 must ensure that experience is gained adequately in each technique being sought for approval within the method

The NDTWP must include the minimum experience requirements for each method and level in accordance with EN4179 and it shall describe how the experience will be obtained. The experience shall be documented in an experience logbook. The experience logbook may be a paper logbook or an electronic system. The minimum information to be recorded in the logbook is indicated in Appendix 3: Example experience logbook.

2.8.1 Previous experience and equivalent experience

The RL3 may accept the previous experience in the following cases:

- ☐ the person was a trainee acquiring NDT experience in another Part-145 AMO; or
- ☐ the person was previously certified under EN4179 or NAS410 or the equivalent national aerospace NDT standard acceptable to CAAT in another Part-145 AMO; or
- ☐ the person was previously certified under EN4179, NAS410 or the equivalent national aerospace NDT standard acceptable to CAAT in a maintenance organisation holding a national approval for maintenance or production; or
- ☐ the person was previously certified under EN4179, NAS410 or the equivalent national aerospace NDT standard acceptable to CAAT and
- ☐ the previous experience is properly documented with experience records/experience logbook.

The RL3 shall review the previous experience records / logbooks to assess which portion of previous experience can be accepted. The previous experience records shall be in English, and it shall include:

- ☐ the name of organisation where the experience was obtained;
- ☐ details of the tasks performed, the method and level, aircraft registration of component identification;
- ☐ the function (trainee, L1, L2) of the person performing the task;
- ☐ name of the supervisor if the task was performed under supervision;
- ☐ the date when the task was performed; and
- ☐ any other additional information necessary to determine the adequacy of the experience to the requirements of the NDTWP.

2.9 Certification and recertification

(In example, EN4179:2026, item 8.1, 8.5, 8.5.1, 8.5.2, 8.5.3)

The RL3 shall issue a certification statement when the candidate:

- ☐ has completed the qualification process (training, examination, experience);
- ☐ has achieved an average score in the examination > 80%
- ☐ has a valid vision examination certificate in accordance with the NDTWP

If the general and specific training were completed more than 12 months before, then specific refresher training as specified in 2.6.5 is required before the issue of the certification statement.

The certification statement shall indicate:

- ☐ method, level and, in case of L1 and L2, also the techniques for which the candidate is recommended for certification,
- ☐ average score of examination,
- ☐ name of RL3 issuing the certification statement,
- ☐ name of the AMO and reference to the NDTWP used for the certification,
- ☐ date of issue of the statement and expiry date,
- ☐ if the individual needs visual correction for the performance of inspections, and
- ☐ any limitations determined by the RL3 or examiner.

The certification for L1, L2 and L3 expires after 5 years, and it is considered to expire at the end of the month in which it is due. Before the expiration date the NDT staff must pass recertification. The recertification consists of:

- ☐ For L1 and L2: the NDT staff must pass specific and practical examination equivalent to initial certification.
- ☐ For internal L3: the NDT staff must pass specific and practical examination equivalent to initial certification and when he/she is authorized to process parts and/or interpret and evaluate indications he/she must pass practical examination equivalent to initial L2 certification.
- ☐ For external L3: the certification and recertification shall follow the procedures of the outside agency. When the external RL3 is authorized to process parts and/or interpret and evaluate he/she must pass practical examination equivalent to initial L2 certification.

2.10 Suspension and revocation of certification statement

(In example, EN4179:2026, item 8.3, 8.3.1, 8.3.2, 8.3.3, 8.4)

The certification statement is suspended when:

- ☐ The vision examination is expired
- ☐ The annual proficiency review is expired
- ☐ The person does not pass the annual proficiency review.
- ☐ The person's performance is found unsatisfactory in any manner.
- ☐ The person fails the recertification
- ☐ The person does not perform in the method for the AMO for more than 12 consecutive months.

After suspension, the certification statement can be reinstated when the cause for suspension is corrected.

The certification statement shall be revoked when:

- ☐ The person does not perform in the certified method for the AMO for more than 24 months
- ☐ The person does no longer work for the AMO
- ☐ The person's conduct is unethical, or the person is found incompetent.

After revocation the person must pass recertification to reinstate the certification.

2.11 Additional techniques

(In example, EN4179:2026, item 3.38, 4.1.2)

A L1 or L2 holding a valid certification statement from the RL3 for a particular method and technique(s) may require to be certified for additional technique(s) not included in the certification statement.

This shall be established by the RL3 in accordance with a procedure included in the written practice. The qualification process for additional technique(s) shall include as a minimum practical examination using at least one test sample for each technique to be added.

2.12 Annual Proficiency Review

(In example, EN4179:2026, item 8.6)

The RL3 or other L3 nominated by the RL3 shall perform an on-the-job assessment of the technical proficiency of the NDT staff for each method and technique for which they are authorized to inspect parts. This assessment shall be performed every 12 months after certification/recertification. The annual proficiency review is not necessary the year of the recertification. The NDTWP shall include the procedure for the annual proficiency review⁷.

2.13 Record keeping

(In example, EN4179:2026, item 4.1.7, 8.2, 8.2.1, 8.2.2)

The AMO shall keep the records necessary to demonstrate the training, experience and examination of each NDT staff, this includes:

1. Identification of the NDT staff: name, date and place of birth, formal education,
2. Certification statement issued to the NDT staff detailing the level, method, technique date of issue and expiry date
3. Copy of the AMO authorisations issued to the NDT staff
4. The latest examination papers (general, specific, practical) taken by the individual in the AMO. If the examinations were performed by an outside agency, then the examination papers may be kept by the outside agency as agreed between the AMO and the outside agency.
5. The examination certificates of all examinations taken by the individual during his/her employment in the AMO. This includes certificates issued after internal examination and certificates issued by outside agency if an outside agency is used for examination.
6. NDT training history including training syllabus, duration of training, dates of training, method of training, training providers/instructors. If previous training is accepted the records shall include the assessment of the previous training as detailed in 2.5.5.

⁷ Guidance for the annual proficiency review is provided in the document ANDTBF_12 Annual assessment prepared by the Aerospace NDTB Forum and the latest issue which is published in <https://www.efndt.org/Services/Document-Store?EntryId=15421>

7. NDT experience history including: the experience logbook in the AMO and the records required to accept previous experience as detailed in 2.8.1.
8. The most recent visual acuity and colour perception examination report.
9. The annual proficiency review records
10. Suspended or revoked certification(s) shall be documented for reason and date. If applicable, date and action to reinstate certification(s) shall also be documented
11. NDT sign-off authorisation or NDT C/S authorisation and the training and assessment records required to issue the authorisation

The AMO shall retain the records for at least three years after the NDT staff have ceased employment with the AMO. In addition, upon request, the AMO shall furnish the staff referred to in this point with a copy of their personal record on leaving the organisation, except for the examination papers in point 3.

3. NDT WRITTEN PRACTICE (NDTWP)

3.1 General

The NDTWP shall address the procedural details necessary for the AMO to implement an NDT qualification and certification program. The content and structure of the written practice is described in the next paragraph.

The NDTWP is considered an associated procedure to the MOE, it shall be listed on the MOE 1.11.2, and its implementation shall be audited by the AMO quality system.

3.2 NDTWP structure and content

PART 0 INTRODUCTION

0.1 Table of Contents

This paragraph should include the table of contents of the NDTWP. For standardisation purposes and to facilitate the production of the NDTWP by the AMO, CAAT recommends adoption of the following table of contents.

Table of Contents

Part 0: Introduction

- 0.1 Table of contents
- 0.2 List of effective pages
- 0.3 List of issues/Amendments revision records
- 0.4 Written Practice amendment procedure
- 0.5 Approval of the NDTWP
- 0.6 Definitions and abbreviations

Part 1: General

- 1.1 Purpose
- 1.2 Methods and techniques
- 1.3 Responsible Level 3 (RL3)

Part 2: Qualification and Certification procedures

- 2.1 Levels of qualification and certification
- 2.2 Training
- 2.3 Examination
- 2.4 Experience
- 2.5 Visual examination
- 2.6 Certification and recertification
- 2.7 Annual Proficiency Review
- 2.8 Additional techniques
- 2.9 Record Keeping

Part 3: Appendices to the written practice

0.2 List of Effective Pages

This paragraph shall include the list of effective pages. For guidance, please refer to Guidance Material for Development of Maintenance Organisation Exposition (MOE) (CAAT-GM-AIR-501)

0.3 List of Issues / Amendments Record of Revisions

This paragraph should include the list of issues and the reason for revision for change of the NDTWP.

Please note that the NDTWP issues and revisions must be numeric, for example issue 1 revision 3, the use of the alphabet for issue and revision control shall be avoided.

0.4 NDTWP amendment procedures

This paragraph shall describe the procedure followed by the AMO for the amendment of the NDTWP. This procedure shall indicate:

- ☐ Person responsible for amending the NDTWP
- ☐ Definition of minor & major amendments to the NDTWP and related approval process.
- ☐ Definition of criteria for new issue and/or revision (depending on the NDTWP revision system adopted by the AMO)

0.5 Approval of the NDTWP

This paragraph shall describe the approval process of the NDTWP, it shall indicate:

- ☐ The NDTWP and any amendment to the NDTWP shall be approved by the RL3.
- ☐ After approval by the RL3, the NDTWP is submitted to the AMO Compliance Monitoring manager for acceptance.
- ☐ The AMO Compliance Monitoring manager shall submit the NDTWP to CAAT for:
 - o Approval (for initial approval), in case of direct approval; or,
 - o notification, in case of indirect approval.

PART 1 GENERAL

1.1 Purpose

(In example, EN4179:2026, item 3.40, 3.42, 4.1)

The purpose of the NDTWP is to establish:

1. the procedures for the qualification and certification of the NDT staff;
2. the functions assigned to the different levels of NDT staff
3. the conditions for the validity of the NDT certification
4. the procedures for the suspension and revocation of the NDT certification.

NOTE: the NDTWP shall not include inspection procedures

1.2 Methods and techniques used by in the organisation

(In example, EN4179:2026, item 1.2.3, 3.22, 3.38, 4.1.3, 4.2)

This paragraph shall identify the methods and techniques used by at the AMO for which they are going to qualify and certify NDT staff. If the AMO has several workshops performing NDT (i.e.: engine workshop, wheel and brake workshop, aircraft structures workshop, etc.) then this paragraph shall identify the different workshops and the methods and techniques used in each workshop.

An AMO approved for NDT in the course of maintenance can only be approved for those NDT methods / techniques used in the course of maintenance under the CAAT scope of approval. For example, if the

AMO holds an CAAT part-145 approval with A1 rating for aircraft XYZ and this aircraft does not have any X-ray inspection then the AMO cannot be approved for X-ray in the course of maintenance.

1.3 Responsible Level 3

(In example, EN4179:2026, item 4.3.2)

This paragraph shall identify:

- ☐ the RL3 and the methods for which he/she is qualified as L3. When the AMO is using an external RL3 then this paragraph shall also identify the outside agency (name and contact details).
- ☐ The functions of the RL3, and for the method(s) for which the RL3 is not qualified as L3, this paragraph shall identify the name(s) of the L3 who will perform those functions.

If the AMO uses an external RL3, then the contract between the AMO and the outside agency detailing the functions of the RL3 shall be included in Part 3: Appendices to NDTWP.

PART 2 QUALIFICATION AND CERTIFICATION PROCEDURES

2.1 Levels of qualification and certification

(In example, EN4179:2026, item 5.1, 5.2, 5.3, 5.4, 5.5, 5.6)

This paragraph shall indicate for each NDT method in the scope of approval of the AMO, the levels of qualification and certification that are going to be used and the functions assigned to each level.

If applicable, it shall detail the cases and/or tasks for which the L1 can perform the interpretation and evaluation of indications.

2.2 Training

(In example, EN4179:2026, item 3.16, 3.20, 6.1, 6.1.1, 6.1.2, 6.1.3, 6.1.4, 6.1.5, 6.2, 6.2.2, 6.3)

This paragraph shall identify if the training will be provided internally and/or by an outside agency.

The AMO may select to use outside agency (ies) to provide training for one or several methods. A combination of internal and external training is also possible. For example, the AMO uses an outside agency to provide the general training, and the specific training is provided internally.

2.2.1 Training course outlines

This paragraph shall include a list with the training courses for:

- ☐ the NDT training for each method and level of qualification used at the AMO.
- ☐ if applicable, the specific refresher training

The training course outlines (including syllabus, duration, type of training, reference material, etc.) shall be included in Part 3: Appendices to NDTWP.

2.2.2 Training facilities

This paragraph shall identify the training facilities to be used for the theoretical part (classroom, meeting room, etc.) and for the practical part of the training (classroom, workshop, etc.).

If an outside agency is used and the training is going to take place at the facilities of the outside agency, then this paragraph shall indicate the address of the outside agency.

2.2.3 Instructors

If the training is provided internally, then this paragraph shall:

- ☐ identify the qualification requirements for instructors;
- ☐ describe the process for approval of instructors. A list of instructors may be included in part 3: Appendices to the NDTWP or alternatively the RL3 may approve the instructors prior the training.

If an outside agency is used to provide the training, then this paragraph shall indicate that the instructors will be nominated by the outside agency.

2.2.4 Training certificate

If the training is provided internally, then this paragraph shall include the procedure to issue the training certificate by the AMO, this paragraph shall describe:

- ☐ the information contained in the certificate;
- ☐ the training attendance records to be checked before the issue of the certificate;
- ☐ the person signing the certificate

The format of the certificate shall be included in Part 3: Appendices to NDTWP

If an outside agency is used to provide the training, then this paragraph shall specify the information to be contained in the certificate.

2.2.5 Procedures for assessment of previous training and equivalent training

This paragraph shall describe the procedure for the assessment of previous training and equivalent training. It should describe as a minimum:

- ☐ the assessment is done by the RL3;
- ☐ the information that must be available for the assessment (such as previous training certificates, syllabus of previous training, duration of previous training, etc.);
- ☐ how the result of the assessment will be documented

Any person credited with previous training or equivalent training must always receive the missing portions of the training and NDT specific refresher training.

2.2.6 Health and safety training

This paragraph shall describe the health and safety training provided by the AMO to every person undergoing on the job training or seeking certification to perform NDT tasks. It shall describe:

- ☐ Health and safety training required for each method
- ☐ When the course will be delivered

The training course outlines (including syllabus, duration, type of training, reference material, etc.) shall be included in Part 3: Appendices to NDTWP.

2.3 Examination

2.3.1 Examination requirements

(In example, EN4179:2026, item 3.3, 3.14, 3.26, 3.35, 3.39, 4.1.4, 7.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.6.1, 7.1.6.2, 7.1.6.3, 7.1.6.4, 7.2, 7.2.1, 7.2.2, 7.2.3, 7.2.4)

This paragraph is applicable both for AMO performing internal examination and also for AMO using an outside agency to provide examinations.

This paragraph shall describe the requirements for the general, specific, additional other NDT methods and practical examination for each method and level, such as:

- ☐ Type of the examination is open book/ closed book
- ☐ The minimum number of questions for each method/ level
- ☐ The type of questions (open questions, multiple choice questions)
- ☐ The minimum number of test samples to be used for the practical examination
- ☐ The minimum score required to pass each individual examination.
- ☐ The minimum average score to be eligible for certification.
- ☐ If applicable, the procedure to credit the general examination

2.3.2 Internal examination procedures

This paragraph is applicable if the AMO performs internal examination. It shall describe:

- ☐ The preparation of questions and master answers
- ☐ The preparation of examination papers, whether the organisation has a question data bank or the questions will be prepared by the examiner before the examination
- ☐ The minimum score required to pass each examination.
- ☐ The time assigned to the examination.
- ☐ The nomination of examiners (the list of examiners can be included in Part 3: Appendices to NDTWP)
- ☐ The security of the examination (facilities where the examination will take place, maximum number of students per examination)
- ☐ The process to select the test samples used for the practical examination taking into account that the test samples cannot be known to the candidate
- ☐ The checklist used for the marking of the practical examination for L1, L2, L3 (this can be included in Part 3- Appendices to NDTWP)
- ☐ The security of test samples used for practical examination
- ☐ How to issue the examination certificate
- ☐ The procedures for re-examination

2.3.3 Use of an outside agency to provide examination

This paragraph is applicable if the AMO uses an outside agency for examination. This paragraph shall:

- ☐ Identify the outside agency to be used to provide examination.
- ☐ List all necessary information to be provided to the outside agency before the examination, such as:
 - The name of the candidate, the method and techniques, the level of certification sought
 - The type of examination (general, specific, practical, additional “other NDT method” for L3)
 - The NDTWP
 - The AMO work instructions, specifications, codes, equipment, operating procedures and test techniques the candidate may use in the performance of his/her duties with the employer.
- ☐ Specify the information required in the examination certificate from the outside agency after the examination, such as:
 - The name of the outside agency administering the examination
 - Name of the candidate
 - Name of the AMO
 - Applicable NDTWP and standards used for the examination
 - NDT Method, Level
 - Exam Date(s)
 - Certificate Issue Date

- Score for the General examination, specific examination
- Method, Technique and score obtained for every test sample in the practical examination

2.4 Experience

(In example, EN4179:2026, item 3.15, 3.25, 6.3, 6.3.1, 6.3.2)

This paragraph shall detail the hours of experience required for each method and level of certification and how the experience will be obtained and documented. As a minimum 30% of the required experience shall be obtained by performing NDT tasks in actual working environment.

The format of the experience logbook to be used to record the experience shall be included in Part 3: Appendices to NDTWP.

2.4.1 Procedure for assessment of previous experience

This paragraph shall describe the procedure for the assessment of previous experience and how this assessment will be documented.

2.5 Visual examination

(In example, EN4179:2026, item 7.1.2)

This paragraph shall describe the method and frequency of the near vision examination and the colour perception examination. It shall also identify:

- who will perform the visual examination,
- how the results of the visual examination will be documented, and
- how the expiry date of the visual examination will be monitored (by QA department, or by RL3, or by NDT manager, etc.)

The format of the visual examination report to be used to record the results of the visual examination shall be included in Part 3: Appendices to NDTWP

2.6 Certification and recertification

(In example, EN4179:2026, item EN4179 8.1, 8.3, 8.3.1, 8.3.2, 8.3.3, 8.4, 8.5, 8.5.1, 8.5.2, 8.5.3)

2.6.1 Certification and recertification

This paragraph shall describe the procedure for the issue of the certification statement by the RL3. This paragraph shall include as a minimum:

- ☐ The requirements to be met by the candidate for initial certification and recertification.
- ☐ Minimum score for certification and recertification
- ☐ The validity period of the certification and recertification
- ☐ The format of the certification/recertification statement (this can be included in in Part 3: Appendices to NDTWP)

2.6.2 Continuous validity, suspension and revocation of the certification

This paragraph shall describe the conditions under which the certification shall be suspended or revoked and the procedure for the suspension, revocation and the reinstatement of the certification. The procedure must explain:

- ☐ Who (RL3 or AMO Compliance Monitoring Manager) is responsible for monitoring the continuous validity of the certification, such as the expiry date of the vision examination, expiry date of the annual proficiency review, performing at least one NDT task in each method every 12 months, etc.

- ☐ how the suspension or revocation of the certification is notified to the affected staff
- ☐ how to reinstate a suspended certification.
- ☐ how to reinstate a revoked certification.

2.7 Annual Proficiency Review

(In example, EN4179:2026, item 8.6)

This paragraph shall describe the procedure for the performance of the annual proficiency review. The format for the annual proficiency review report can be included in Part 3: Appendices to NDTWP.

2.8 Additional techniques

(In example, EN4179:2026, item 3.38, 4.1.2)

This paragraph shall describe the procedure to be used by the RL3 for establishing the qualification required for additional technique(s). The procedure shall describe how the RL3 will assess and document the need for additional training, experience and examination.

2.9 Record keeping

(In example, EN4179:2026, item 4.1.7, 8.2, 8.2.1, 8.2.2)

This chapter shall describe the procedure for record keeping, this shall include:

- ☐ The records to be kept and for how long
- ☐ The record keeping system (for example paper, electronic or a combination of different systems)
- ☐ Who is responsible for the record keeping system (this may be RL3 or the quality manager of the AMO)
- ☐ The obligation of the AMO to provide a copy of the records to the NDT staff on leaving the organisation or at any point required by the NDT staff.

PART 3 APPENDICES TO THE WRITTEN PRACTICE

Examples of documents that could be included as appendices to the written practice

- ☐ Contract between AMO and external RL3
- ☐ Training course outlines
- ☐ Health and safety training
- ☐ List of instructors
- ☐ List of examiners
- ☐ Format of the training certificate
- ☐ Format of the experience logbook
- ☐ Format of the visual examination
- ☐ Format of the certification/ recertification statement
- ☐ Format of the annual proficiency review report

4. AMO AUTHORISATION

4.1 General

NDT without D1 Rating (“in the course of maintenance”)

When the AMO intends to perform and release NDT tasks under another approved rating (e.g. as part of the maintenance carried out on aircraft under rating A1, engines under rating B1, components under a C rating) the NDT tasks are considered done in the “course of maintenance”.

The various NDT methods/techniques to be used in the course of maintenance shall be listed in the MOE 1.9. The AMO can only list in the MOE 1.9 methods and techniques which are required under another rating (A-rating, B-rating, C-rating).

In the case of NDT without D1 rating, the AMO shall authorize NDT sign-off staff for each NDT method/technique listed in MOE 1.9 (NDT without D1 rating).

NDT with D1 Rating

When the AMO intends to perform NDT tasks and release such tasks using an CAAT Form 1, the rating D1 is necessary. Under the D1 rating, the capability to perform maintenance is determined by the “NDT method” listed in the approval schedule, regardless the specific aircraft, engine or component which is subject to the inspection method.

The various NDT methods/techniques shall be listed in the MOE 1.9. In this case the AMO shall authorize NDT certifying staff (C/S) for each method/technique listed in MOE 1.9 (NDT under the D1 rating)

The AMO may be approved both for NDT with D1 rating and for NDT without D1 rating, in such a case the AMO shall authorize both NDT sign-off staff and NDT C/S.

4.2 NDT sign-off staff

The AMO shall have procedures for the authorisation of NDT sign-off staff. These procedures will be included in the MOE 3.17 and the authorisation process shall be under the responsibility of the quality manager or the person designated by the quality manager.

NDT sign-off staff means that the person is authorized to perform the activities necessary to complete the NDT task and sign-off the work card, including:

- ☐ set up and standardize equipment;
- ☐ conduct system performance checks in accordance with instructions issued by the AMO;
- ☐ process parts, including any necessary preparation before and after inspection;
- ☐ interpret and evaluate indications; and
- ☐ document the results in the work card or NDT report as applicable.

4.2.1 Issue of the initial NDT sign-off staff authorisation

The NDT sign-off staff shall have the following:

- ☐ a valid L1 or L2 certification statement⁸
- ☐ a valid near vision test and colour perception test
- ☐ Health and safety training in accordance with NDTWP
- ☐ Safety training According to 145.A.30(e) and GM1 145.A.30 (e)
- ☐ Training on the organisation procedures and MOE applicable to NDT activity as required in the MOE
- ☐ EWIS and Fuel Tank Safety training (when relevant)
- ☐ Satisfactory competence assessment as required in MOE 3.19
- ☐ a working knowledge of the language in which the NDT instructions and/or maintenance data are published and English.

4.2.2 Continuous validity of the NDT sign-off staff authorisation

The AMO must have a process to monitor the continuous validity of the NDT sign-off authorisation.

The initial authorisation is valid as long as:

- ☐ The certification statement is not expired, suspended or revoked
- ☐ The near vision test and colour perception test are not expired
- ☐ The person has passed a satisfactory annual proficiency review in the last 12 months
- ☐ The person has received continuation training as required in the MOE (organisation procedures, HF, SMS, etc, and FTS and EWIS, when relevant)
- ☐ The person has passed a satisfactory competence assessment in accordance with the MOE

4.3 NDT certifying staff (NDT C/S)

The AMO with D1 rating shall have procedures for the authorisation of NDT C/S. These procedures shall be included in the MOE 3.9.

NDT certifying staff means that the person is authorised to perform the activities necessary to complete the NDT task and issue a release to service, including:

- ☐ set up and standardize equipment;
- ☐ conduct system performance checks in accordance with the applicable process standard;
- ☐ process parts including any necessary preparation before and after inspection;
- ☐ interpret and evaluate indications;
- ☐ document the results in the work card or NDT report as applicable; and,
- ☐ Issue a release to service detailing the work performed and the results.

4.3.1 Issue of the initial NDT C/S authorisation⁹

The NDT C/S shall have:

- ☐ a valid L1 or L2 certification statement
- ☐ a valid near vision test and colour perception test;
- ☐ 2 years of aeronautical experience in the field of aviation maintenance including at least 12 months of practical experience in NDT maintenance (as trainee or level 1 or level 2 or level 3)

⁸ The certification statement is suspended if the person does not perform in the method for more than 12 months

⁹ For further guidance, refer to the Guidance Material for Demonstration of 6/24 Months Maintenance Experience (CAAT-GM-AIR-509)

- ☐ health and safety training as required in the NDTWP
- ☐ Safety training According to 145.A.30(e) and GM1 145.A.30 (e)
- ☐ training on the organisation procedures and MOE applicable to NDT activity as required in the MOE.
- ☐ EWIS and Fuel Tank Safety training (when relevant)
- ☐ Satisfactory competence assessment as required in MOE 3.19
- ☐ a working knowledge of the language in which the maintenance data is published and English.
- ☐ more than 21 years of age, and

4.3.2 Continuous validity of the NDT C/S authorisation

The AMO shall have a process to monitor and ensure the continuous validity of the NDT C/S authorisation. The initial authorisation is valid as long as the following conditions are met:

- ☐ The certification statement is not expired, suspended or revoked.
- ☐ The near vision test and colour perception test are not expired.
- ☐ The NDT C/S has received continuation training within the last 24 months including MOE, Safety and EWIS continuation training (if applicable).
- ☐ The NDT C/S has 6 months of recent NDT experience during any consecutive 24 months period. The experience will be counted in total for all the NDT methods and techniques for which the individual is authorised.

To ensure compliance with these requirements, the maintenance organisation's compliance monitoring system must issue a document or maintain an electronic system that records and summarizes the number of completed tasks (or working days) for NDT C/S. (Example of Experience Logbook can be found at Appendix 3: Example experience logbook)

- ☐ The NDT C/S has passed satisfactory competence assessment as required in MOE 3.19 within previous 12 months.

4.4 Competence assessment of NDT staff

The procedure for competence assessment of NDT C/S and NDT sign-off staff shall be included in MOE 3.19. The aim of the assessment is to ensure compliance of the NDT sign-off staff and NDT C/S with the relevant TCAR AIR Part-145 requirements, with EN4179, with the criteria defined in this guidance material and to ensure that each NDT C/S and NDT sign-off staff possesses the expected competence(s) associated to his/her job function (proposed scope of work and level of maintenance). This assessment shall also take into consideration attitude and behaviour.

The competence assessment is required before granting an initial TCAR AIR Part-145 C/S or sign-off staff individual authorisation, to extend the scope of an issued authorisation to add new methods or techniques and to ensure the continuous validity of the C/S and sign off authorisation.

As a consequence, the maintenance organisation shall demonstrate through a competence assessment that the NDT C/S or sign-off staff:

- Meets the qualification criteria addressed in 4.2 or 4.3;
- Has the relevant knowledge, skills and ability to perform the maintenance tasks related to his/her job function including the relevant language knowledge;
- Is able to perform the activities included in the scope of its authorisation (this may include to complete the NDT task and document the results properly).

In the case of initial and renewal authorisation or extension of the scope of an already existing authorisation (add new methods/ techniques), the competence assessment must:

- Be specifically tailored to the methods / techniques intended to be covered by the authorisation;
- include evaluation of “On the Job Performance” and /or “testing of knowledge” by appropriately qualified personnel

In addition, the following shall be taken into account when doing the competence assessment of NDT staff

- The annual proficiency review is an “on the job assessment” of the technical proficiency of the NDT staff for each method for which they are authorized to inspect parts. The AMO shall describe in MOE 3.19 which elements of the competence assessment are reviewed during the annual proficiency review, such as for example:
 - Ability to use, control and be familiar with required tooling and/or equipment
 - Ability to confirm proper accomplishment of maintenance tasks
 - Ability to understand work orders, work cards and refer to and use applicable maintenance data
- It is recommended that the competence assessment form contains an open text field where the person responsible for the assessment records the questions raised, comments or any other information useful to support the recommendation for the pass/fail result. A “box-ticking” exercise would be pointless.

4.5 Summary table for TCAR AIR PART-145 NDT C/S and sign-off staff qualification criteria

			NDT C/S	NDT sign-off staff
Initial authorisation or extension of the authorisation	NDT requirements	NDT certification	A valid L1 or L2 certification statement The certification statement is suspended if the person does not perform in the method for more than 12 months	
		Visual acuity examination	- Valid near vision test - Valid colour perception test	
		Aeronautical experience	2 years of aeronautical experience in the field of aviation maintenance including at least 12 months of practical experience in NDT maintenance as L1, L2 or L3 ¹²	n/a
	Technical training	Additional training	MOE and internal procedures applicable to NDT C/S (including issuance of CAAT Form 1, documenting results, etc.)	MOE and internal procedures applicable to NDT sign-off staff (including signing off tasks, documenting results, etc.)
			- Any additional training(s) justified during the assessment performed by the maintenance organisation (e.g. aviation legislation, familiarisations with aircraft / engine / component maintenance, etc.) - EWIS and Fuel Tank Safety training (when relevant)	
	General training and experience	HF and Aviation legislation training	Initial Safety training (including Human Factor) according to TCAR AIR Part-145, 145.A.30(e) and GM1 145.A.30 (e) syllabus	n/a
		Maintenance experience	n/a	n/a
	Other	Language knowledge	Working knowledge of the language in which the maintenance data is published and working knowledge of English for documenting the results and issuing the CRS (and for Airworthiness directives if required).	Working knowledge of the language in which the maintenance data is published AND working knowledge of English for documenting results (and for Airworthiness directives if required).
		Competence assessment	Documented competence assessment as required in MOE 3.19	

¹² If the L3 is authorised to process parts and interpret and evaluate indications and document results.

		NDT C/S	NDT sign-off staff
Continued validity of the NDT C/S and sign-off authorisations	NDT requirements	• Verification that the NDT certification statement remains valid, and it is not expired, suspended or revoked • Valid annual proficiency review	
	Visual acuity examination	• Valid near vision test • Valid colour perception test	
	Maintenance experience	6 months of relevant NDT experience within each 24 months period. The experience will be counted in total for all the NDT methods and techniques for which the individual is authorised.	Evidence that the person has performed an NDT task in the particular method within the scope of his/her authorisation for the AMO in the previous 12 months.
	Continuation training	• MOE continuation training • Safety continuation training • EWIS continuation training (if applicable)	
	Competence assessment	Documented competence assessment as required in MOE 3.19	

4.6 Summary of assessment for TCAR AIR PART-145 NDT C/S and NDT sign-off staff

Purpose of the Assessment				
☐ Initial grant ☐ Extension ☐ Continuous validity				
The competence assessment shall include evaluation of “On the Job Performance” and /or “testing of knowledge” by appropriately qualified personnel				
I QUALIFICATION				
		NDT C/S and sign- off staff	Normally included in annual Maintenance (Annual Proficiency Review)	Open text field*
I.1	Refer to the Summary table (§4.5) for TCAR AIR Part-145 NDT C/S and sign-off staff qualification			
II KNOWLEDGE				
II.1	Knowledge of applicable officially recognised standards			
II.2	Knowledge of safety management, human factors, human performance and limitations, and just culture			
II.3	Knowledge of maintenance organisation capabilities, privileges and limitations			
II.4	Knowledge of TCAR AIR Part-M, TCAR AIR Part-145 (and any other relevant regulations)			
II.5	Knowledge of relevant parts of the MOE and associated procedures			
II.6	Knowledge of safety risks linked to the working environment			
II.7	Knowledge on Critical Design Configuration Control Limitations (CDCCL) (when relevant)			
II.8	Knowledge on EWIS (when relevant)			
II.9	Knowledge of occurrence reporting (mandatory and voluntary), internal reporting scheme and understanding of the importance of reporting occurrences, incorrect maintenance data and existing or potential defects			
III UNDERSTANDING				
III.1	Understanding of professional integrity, behaviour and attitude towards safety			
III.2	Understanding of conditions for ensuring continuing airworthiness of aircraft and components			
III.3	Understanding of his/her own human performance and Limitations			
III.4	Understanding of personnel authorisations and limitations			
III.5	Understanding critical task			
IV ABILITY				
IV.1	Reserved			
IV.2	Ability to compile and control completed work cards			
IV.3	Ability to consider human performance and limitations			
IV.4	Ability to determine required qualifications for task			

	performance			
IV.5	Ability to identify and rectify existing and potential unsafe Conditions			
IV.6	Ability to confirm proper accomplishment of maintenance tasks			
IV.7	Ability to identify and properly plan performance of critical maintenance task			
IV.8	Ability to prioritise tasks and report discrepancies			
IV.9	Ability to process the work requested by the operator			
IV.10	Ability to properly process removed, uninstalled and rejected parts			
IV.11	Ability to properly record and sign for work accomplished			
IV.12	Ability to recognise the acceptability of parts to be installed prior to fitment			
IV.13	Ability to understand work orders, work cards and refer to and use applicable maintenance data			
IV.14	Ability to use information systems			
IV.15	Ability to use, control and be familiar with required tooling and/or equipment			
IV.16	Adequate communication and literacy skills			
Adequate communication and literacy skills: The NDT C/S and NDT sign-off staff shall be able to demonstrate a working knowledge of the language in which the maintenance data is published and English.				
Note: This list shall not be considered as exhaustive. It remains the responsibility of the maintenance organisations to adjust it. *It is recommended that the assessment form contains an open text field where the person responsible for the assessment records the questions raised, comments or any other information useful to support the recommendation for the pass/fail result.				

5. APPENDICES TO THE GUIDANCE MATERIAL

5.1 Appendix 1: Example marking checklist for practical examination L1 / L2

AMO name:		NDT Written practice reference:	
Name:		Date:	
Method:	Level: 1 / 2	Technique:	
Procedure / Written instruction:		Test sample:	
Subject	Max score	Score achieved	
Understanding of procedure/ work instruction	A	a	
System performance checks	B	b	
Equipment set-up	C	c	
Part preparation	D	d	
Safety precautions	E	e	
Step by step performance	F	f	
Interpreting results	G	g	
Writing test report	H	h	
Sub-total score	A+B+C+D+E+...=100	a+b+c+d+e+...= S	
All discontinuities detected? If YES, then D = 1 If NO, then D = 0		D	
Final score = S x D (final score ≥ 70 , then this examination is PASS)			
Name of examiner:		Signature examiner:	

5.2 Appendix 2: Example visual acuity examination report

AMO name:	NDT Written practice reference:
Name of the person tested:	
Date:	
<u>Near vision test</u> Visual correction wear during test: YES/ NO Method used: Result:	
<u>Colour perception test</u> Method used in the colour perception test: Result:	
Name of examiner:	Signature examiner:
Expiry date of near vision test:	DD/MM/YYYY (12 months after the date of the test)
Expiry date of colour perception test:	DD/MM/YYYY (5 years after the date of the test)

5.3 Appendix 3: Example experience logbook

Name:	
Method:	
Level sought: L1 / L2 / L3	
Organisation:	
Name of RL3 reviewing and accepting the experience on this page:	
Date reviewed by RL3:	
Signature of RL3:	

ID	Date	Operation performed (inspection of test sample / equipment set-up / system performance check / part processing / result interpretation)	NDT task or work instruction used	A/C Reg or component p/n, s/n	Work order reference	Time (Hours)	Supervisor (if the task is performed as L1 and no supervisor is required please indicate "n/a L1 task")

5.4 Appendix 4: Example examination report

AMO name:		NDT Written practice reference:	
Name:			
Date:			
Method:		Level: 1 / 2 / 3	
Exam type	Score required	Score achieved	Re-examination
General	≥ 70%	a	
Specific	≥ 70%	b	
Practical	≥ 70%	c	
Sample 1: Technique 1	≥ 70%	d	
Sample 2: Technique 2	≥ 70%	e	
Sample 3: Technique 3	≥ 70%	f	
Preparation of work instruction	≥ 70%	g	
Average score for certification	≥ 80%		
Name of examiner:		Signature examiner:	

5.5 Appendix 5: Draft guidance definition of methods and techniques

The table is a document prepared by the ANDTBF and used in this GM as guidance.



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THE NEED TO IDENTIFY NDT METHODS AND NDT TECHNIQUES USED BY THE EMPLOYER

Examples to comply:

Examples in Method and Technique		Examples in Application	Examples in Equipment	RL3 to identify level, method, technique used by the employer
UT	Contact Technique	- single channel testing	- manual	UT Level 1; 2 or 3 <i>Contact Technique; Trough Transmission (C-Scan); Phased Array, (A-; B-; C-; S-Scan) Inspection on metallic and composite/bonded parts.</i>
	Immersion technique	- single channel testing	- manual	
	Squitter Technique	- multi channel testing	- semi-automated	
	Phased Array		- automated	
ET	Conductivity Testing	- spot testing probes	- manual	ET Level 1; 2 or 3 <i>Application of low, mid and high frequencies, in application with spot probes, sliding, rotating and array probes, mobile and stationary equipment.</i>
	Coating & thickness measurement	- pencil probes	- manual	
	Flaw & corrosion detection (multiple frequencies HF; MF; HF)	- sliding probes	- semi-automated	
		- rotating probes	- automated	
MT	Electromagnetic Yokes	- array probes	- localized application	MT Level 1; 2 or 3 <i>Application of direct, in-direct and induced magnetization in application with stationary AC, FWDC, HWDC equipment</i>
	Direct Magnetization	- continuous wet	- stationary	
	Indirect Magnetization	- residual fields	- AC, HWDC, FWDC	
	Induced Current Magnetization			
PT	Solvent Remover; method C	- developer form a	- localized application	PT Level 1; 2 or 3
RT	Water washable; method A	- developer form d	- manual	Application of type I penetrants, method A, C and D, in combination with form -a- and form -d- developer.
	Post emulsified; method B or D		- semi-automated	
			- automated	
IRT	Film technique (analogue)	- stationery / in-motion	- analogue films	RT Level 1; 2 or 3 <i>Application of x-ray tubes in combination with analogue imaging and digital detector arrays on metallic and composite and bonded parts.</i>
	Digital Detector Array Radiology (DDA; non-film technique)	- dense or light metals	- Digital Detector Array	
	Computed Radiography (CR; non-film technique)	- castings or welds	- Imaging plate/scanner	
		- bonded parts		
IRT	Transient Thermography	- Detection of Moisture in composite parts	- manual	IRT Level 1; 2 or 3 <i>Application of transient- (e.g. heat gun), impulse- (e.g. time-controlled heat source) and Lockin method (e.g. Ultrasonic pulse excitation). Application on metallic and composite parts.</i>
	Impulse Thermography	- Detection of subsurface defects	- stationary	
	Lockin Thermography			