



NDT Certification Renewal Guide

- Radiographic testing**
- Ultrasonic testing**
- Magnetic testing**
- Penetrant testing**
- Eddy current testing**
- Ultrasonic testing Phased array**
- Visual testing**





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Ce guide est aussi disponible en français à l'adresse suivante :

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Overview of NRCan National Non-destructive Testing Certification Body Services

The Natural Resources Canada (NRCan) National Non-Destructive Testing Certification Body (NDTCB) manages Canada's nation-wide program for the certification of individuals performing non-destructive testing (NDT). The NRCan NDTCB certifies/recertifies individuals according to CAN/CGSB-48.9712/ (ISO 9712, IDT) standard.

In performing this function, the NRCan NDTCB carries out the following tasks:

- a) Examines the information provided by the applicant to ensure that the applicant has the basic education, recommended NDT training and experience required by the standard;
- b) Prepares, administers and evaluates both written and practical examinations;
- c) Maintains a network of examination centres across Canada for both written and practical examinations;
- d) Renews and recertifies certificates as specified by the standard.

In recertifying a candidate, the NRCan NDTCB only attests that the candidate has demonstrated sufficient knowledge and skill to meet the requirements of the CAN/CGSB-48.9712 standard. The NRCan NDTCB cannot attest to the certificate holder's competence in any specific situation at the time of original certification, or at any time thereafter.

In undertaking the administration of the program, the NRCan NDTCB attempts to provide the unbiased Canada-wide services required to implement a national program. A group of Scheme, Technical and Advisory Committees composed of stakeholders and individuals knowledgeable about NDT in Canada advises the NRCan NDTCB on the operation of this program.

IMPORTANT NOTICE

- According to CAN/CGSB-48.9712-2022 section 10, prior to the completion of the period of validity (approximately 5 years) following initial certification and recertification, certificate holders for all levels seeking renewal to extend certificate validity for another 5 years are required to:
 1. Submit completed satisfactory Vision Test Report Form for Near Vision and Distance Vision Acuity within the preceding 12 months.
 2. Submit completed satisfactory Vision Test Report Form for Colour vision and/or grey scale perception examination taken within the preceding 60 months.
 3. Submit completed Renewal Application form attested by the employer of continued satisfactory work activity without significant interruption in the method and sector for which renewal is being sought.
 4. Satisfy the renewal requirements:
 - a. Meet the requirements of the Structured Credit System, **OR**
 - b. Successful completion of the renewal practical examination.
- All forms and guides can be downloaded from the NRCan NDTCB website at [Quick Downloads: NDT Certification Body Forms and Guides - Natural Resources Canada](#).
- If there exist a significant interruption in the continued satisfactory NDT work activity within the preceding 5 years, the certificate holder is required to complete the practical examination.
- Certificate holders at all levels not meeting the requirements for renewal are required to fulfill the requirements for recertification per level.
- Certificate holders are responsible in initiating the procedure required for renewal.
- As per the NRCan NDTCB Rules of Implementation for the CAN/CGSB-48.9712-2022 standard, section 15, mandatory Structured Credit System (or completion of a practical exam element) will be required for certifications due **March 31, 2026 and later**.



Structured Credit System for Renewal Level 1, 2, 3 - All Methods

In accordance with CAN/CGSB 48.9712-2022 Structured Credit System (SCS), candidates for all levels may gain credit for participation in the various activities during the five-year period prior to renewal as shown in the Table A, Table B and Table C below. Limits are placed on the maximum number of points which can be gained per activity, per year, and over the five years per level to ensure an even spread of activities.

To be eligible for renewal via Structured Credit System, candidates must provide documentary evidence to NRCAN NDTCB to demonstrate achievement of a **minimum of 100 points in the 5-year renewal period** based on the requirements of:

- A minimum of 75 of the 100 points is required for any combination of activities listed in **Part A of Table A** for candidates seeking renewal of Level 1 certificates;
- A minimum of 50 of the 100 points is required for any combination of activities listed in **Part A of Table B** for candidates seeking renewal of Level 2 certificates.
- A minimum of 50 of the 100 points is required for any combination of activities listed in **Part A of Table C** for candidates seeking renewal of Level 3 certificates.

Important Notes:

1. A structured credit system application counts as an examination attempt for renewal and cannot be withdrawn once it has been submitted. If a structured credit system application is submitted and is not approved, it counts as a failed examination attempt. Only one attempt of the structured credit system is allowed per level 3 method.
2. As per section 10.2.3 of CAN/CGSB 48.9712:2022, a pro-ration of the renewal structured credit system minimum points will be applied for candidates given a renewal period of less than 5 years, i.e. a 4-year renewal period would require a minimum of 80 points ($100 \times 4/5$).
3. As per section 10.2.4 of CAN/CGSB 48.9712-2022, where a candidate is seeking renewal for more than one certificate, points granted for a specific activity can be applied to the total points required for each certificate for those activities not specific to a particular method (e.g. "Current individual membership in NDT or NDT related society"). However, candidates shall meet the total number of points required (i.e. 100 points) for each certificate for which renewal is being sought.

Structured Credit System Application Submission Instructions:

1. Submit 8.2.1-004 - Renewal Application form for the method, level and sector for which renewal is being sought.
2. Fill out **separate** 8.2.1-073 - Structured Credit System Application Form for Renewal **for each NDT method and level** for which renewal is being sought. A submitted 8.2.1-073 - Structured Credit System (SCS) Application Form for Renewal with more than one method and level indicated on page 1 will not be accepted.
3. Attach applicable documentary evidence for each activity listed in the 8.2.1-073 - SCS Application form for Renewal, ensure to indicate which activity each piece of documentation corresponds to.
4. Submit duly completed, signed and current dated application forms and documentary evidence to the NRCAN NDTCB via email at ndt-end@nrcan-rncan.gc.ca for review and assessment well in advance of the renewal due date.

Note: Other forms of documentary evidence may be accepted. For evidence to be considered valid and satisfactory, the candidate may require their documentation to be submitted with employer and/or third-party attestations and signatures, attesting to the validity of the information provided.

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Level 1 - All Methods

Table A: Structured Credit System Activities and Accorded Points for Renewal Level 1

This table details the points accorded for each NDT activity in the Structured Credit System based on Table C.1 of CAN/CGSB 48.9712-2022.

Activity	Points granted per activity	Maximum points per year for activity	Maximum points per 5-year period for activity
Part A (minimum of 75 of the 100 points required)			
Activity #1: Performance of NDT Activities (see Notes B below)	2 / day	25	95
Activity #2: Completion of theoretical training in the method	1 / day	5	15
Activity #3: Completion of practical training in the method	2 / day	10	25
Activity #4: Delivery of practical or theoretical training in NDT in the method considered	N/A	N/A	N/A
Activity #5: Participation in research activities in NDT field or for engineering of NDT (see Notes C below)	1 / week	15	60
Part B			
Activity #6: Participation to a technical seminar/paper in the field of the method or technique	1 / day	2	10
Activity #7: Presenting a technical seminar/ paper in the field of the method or technique	1 / presentation	3	15
Activity #8: Current individual membership in NDT or NDT related society	1 / membership	2	5
Activity #9: Technical oversight and mentoring of NDT personnel/ trainee in the relevant method	N/A	N/A	N/A
Activity #10: Participation or convenorship in standardization and technical committees	N/A	N/A	N/A
Activity #11: Performing a technical NDT role within a certification body	N/A	N/A	N/A

Level 2 - All Methods

Table B: Structured Credit System Activities and Accorded Points for Renewal Level 2

This table details the points accorded for each NDT activity in the Structured Credit System based on Table C.1 of CAN/CGSB 48.9712-2022.

Activity	Points granted per activity	Maximum points per year for activity	Maximum points per 5-year period for activity
Part A (minimum of 50 of the 100 points required)			
Activity #1: Performance of NDT Activities (see Notes B below)	2 / day	25	95
Activity #2: Completion of theoretical training in the method	1 / day	5	15
Activity #3: Completion of practical training in the method	2 / day	10	25
Activity #4: Delivery of practical or theoretical training in NDT in the method considered	1 / day	15	75
Activity #5: Participation in research activities in NDT field or for engineering of NDT (see Notes C below)	1 / week	15	60
Part B			
Activity #6: Participation to a technical seminar/paper in the field of the method or technique	1 / day	2	10
Activity #7: Presenting a technical seminar/ paper in the field of the method or technique	1 / presentation	3	15
Activity #8: Current individual membership in NDT or NDT related society	1 / membership	2	5
Activity #9: Technical oversight and mentoring of NDT personnel/ trainee in the relevant method	2 / mentee	10	30
Activity #10: Participation or convenorship in standardization and technical committees	1 / committee	3	15
Activity #11: Performing a technical NDT role within a certification body	2 / activity	10	30

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Level 3 - All Methods

Table C: Structured Credit System Activities and Accorded Points For Renewal Level 3

This table details the points accorded for each NDT activity in the Structured Credit System based on Table C.1 of CAN/CGSB 48.9712-2022.

Activity	Points granted per activity	Maximum points per year for activity	Maximum points per 5-year period for activity
Part A (minimum of 50 of the 100 points required)			
Activity #1: Performance of NDT Activities (see Notes B below)	2 / day	25	95
Activity #2: Completion of theoretical training in the method	1 / day	5	15
Activity #3: Completion of practical training in the method	2 / day	10	25
Activity #4: Delivery of practical or theoretical training in NDT in the method considered	1 / day	15	75
Activity #5: Participation in research activities in NDT field or for engineering of NDT (see Notes C below)	1 / week	15	60
Part B			
Activity #6: Participation to a technical seminar/paper in the field of the method or technique	1 / day	2	10
Activity #7: Presenting a technical seminar/ paper in the field of the method or technique	1 / presentation	3	15
Activity #8: Current individual membership in NDT or NDT related society	1 / membership	2	5
Activity #9: Technical oversight and mentoring of NDT personnel/ trainee in the relevant method	2 / mentee	10	40
Activity #10: Participation or convenorship in standardization and technical committees	1 / committee	4	20
Activity #11: Performing a technical NDT role within a certification body	2 / activity	10	40

NOTES:

(This section is an excerpt from CAN/CGSB-48.9712-2022/ ISO 9712:2021, IDT)

A. The term “year” noted in Tables A, B & C is specified as a certification year and not as a calendar year.

B. Performance of NDT activities

The following work activities may be considered as acceptable under activity#1:

- a) knowledge and understanding of the customer’s specifications and the inspection standards;
- b) verification of operating conditions or setting up of the test equipment, successful performance of NDT, satisfactory reporting;
- c) performance as a Level 3 examiner.

Candidates must submit a completed Renewal Structured Credit System Application form, together with documentation and/or evidence to demonstrate compliance including, but not limited to, the following:

- a) confirmation of the candidates work activities by a certified individual or referee;
- b) confirmation of the level of activity of the individual in the given method;
- c) confirmation of formal documented competency or proficiency test(s) in the given method;
- d) dates and protocol numbers of reports;
- e) details of any job specific training received;



- f) confirmation of employer's authorization to operate;
- g) summary of activities and outputs;
- h) job/position description;
- i) annual/regular employer assessments of performance/competence;
- j) sample NDT reports;
- k) sample procedure(s) developed (Level 3 only);
- l) customer feedback;
- m) confirmation of adherence to code of ethics from employer;
- n) confirmation of compliance with additional national requirements (i.e. radiation safety).

C. Engineering of NDT

As defined in Annex E of the CAN/CGSB 48.9712-2022, Engineering of NDT covers all the activities linked to NDT, from the design of the equipment to the responsibility of preparation, implementation and verification of NDT (in manufacturing and in service) of the same equipment belonging to industrial or technical installations.

Below is a list of non-exhaustive list of activities covered under Engineering of NDT:

- a) at design stage, definition of requirements to be taken into account and/or verification of inspectability during manufacturing and, where applicable, in service, of equipment;
- b) selection of NDT techniques to be implemented in manufacturing and/or in service;
- c) comparison of specific prescriptions of different codes and standards;
- d) establishment or validation of the NDT procedures;
- e) technical evaluation of NDT suppliers;
- f) evaluation of NDT techniques, notably in the frame of expertise;
- g) treatment (technical evaluation) of non-conformity;
- h) justification to the customers and where applicable, to the associated safety authorities, of practices implemented;
- i) responsibility for an NDT facility;
- j) coordination and supervision of NDT personnel activities;
- k) qualification — validation of NDT techniques:
 - 1) establishment of input information's including the inspection objectives;
 - 2) definition of the necessary mocks-up for open and, where necessary, blind tests;
 - 3) implementation of practical tests;
 - 4) preparation of technical justification including when necessary, modelling;
 - 5) preparation or validation of NDT procedures;
 - 6) preparation or validation of qualification dossiers.
- l) establishment of in-service inspection programmes for industrial installations or definition of rules for the establishment of such programmes.

Note: It is the responsibility of the candidate to refer to CAN/CGSB-48.9712-2022 / ISO 9712:2021, IDT standard to obtain full information regarding Level 3 Structured Credit System for renewal.



Renewal Practical Examination Levels 1, 2, 3 - All Methods

In accordance with CAN/CGSB 48.9712-2022 section 10.1-d, candidates have the option to satisfy the renewal requirements by successfully completing the practical examination.

Renewal practical examinations for all methods composed of the following:

- **Level 1:** one specimen and performance/calibration checks;
- **Level 2:** one specimen, performance/calibration checks and written instruction (RT also requires film interpretation);
- **Level 3:** one specimen and performance/calibration checks (RT also requires film interpretation).

Note: The candidate is responsible to ensure the examination centre has proof of their Examination Admittance and Registration form issued by the NRCan NDTCB prior to the scheduled practical examination or re-examination. Failure to do this may either delay the start time of the renewal practical exam or may not be allowed to take the examination and may increase cost to the candidate.

A candidate who fails to achieve a grade of at least 70% on each individual specimen/sub-part of the renewal practical examination may retake the renewal practical examination according to the following CAN/CGSB-48.9712-2022 / (ISO 9712:2021, IDT) section 11 criteria and schedule:

- For all levels, a maximum of two (2) retests of the renewal practical examination shall be allowed after at least 7 days and within 12 months of the first attempt at the practical examination (total of 3 exam attempts).
- In the event of failure in the two (2) allowable re-examinations for all levels, the certificate shall be withdrawn. To reinstate the certification, the candidate is required to complete training and retake all examination elements required for initial certification. The date of expiration of the reinstated certificate shall be no more than 5 years from the date of expiration of the original certificate.

The NDT Certification Body reserves the right of choice for practical examination specimens.

All examination times are shown in increments of ½ day or 1 day; ½ day shall be considered a maximum of 4 hours and 1 day shall be considered a maximum 8 hours. Requests for accommodation (such as additional examination time) can only be granted with authorization from the NRCan NDTCB, following its “8.5-009 - NRCan NDTCB Procedure for Consideration of Candidate Requests for Accommodation”. The authorized accommodations shall be noted in the candidate’s examination registration approval and/or examination admittance and registration form. It is the candidate’s responsibility to notify the examination centre of these accommodations at least 10 working days in advance of the examination.

NOTE: Additional information/instruction may be provided to the candidate at the start of the renewal examination. The NDTCB may have implementation rules and policies that can supersede the information provided within this guide.



Radiographic Testing

Level 1 EMC Practical Renewal Examination

General Information

Prior to attempting the practical examination, the candidate should be aware of the following:

1. The duration of the Radiographic Testing Level 1 (RT1) practical renewal examination is 4 hours (½ day).
2. The RT1 practical renewal examination is a closed book examination. The following items are strictly **forbidden** and must be left outside the laboratory/examination room:
 - Books, notes and papers belonging to the candidate;
 - Electronic devices (cell phones, tablets, cameras, etc.);
 - Other items that could provide answers/information for examination questions/content or are capable of recording examination material.

Candidates may use a scientific calculator provided it does not contain information or established programs that provide solutions to examination problems. Candidates are forbidden from consulting the abovementioned materials and devices when leaving the examination room for a break/meal prior to completing the examination.

3. The candidate is **not** allowed to bring their own equipment or film and is **not** allowed to take the examination documents, equipment or specimen out of the laboratory/examination room. All reporting must be completed within the laboratory/ examination room.
4. The candidate will be supplied with the necessary examination equipment and accessories as per NRCan NDTCB examination centre requirements, as well as all reporting sheets, any additional examination documents, and additional paper supplies (provided by the examination centre) as needed to complete the examination.
5. The candidate will be shown the operation and placement of equipment and accessories required to complete the examination, as well as the accessible surfaces of the exam specimen and reference samples. Candidates are advised to review the candidate instructions included with the examination documents.
6. If, for any reason, the candidate must deviate from the supplied technique, the circumstances for this deviation must be stated and supported by the exam invigilator.
7. Surface preparations are **not** permitted on the examination specimen. The candidate is requested to **not** mark the specimen, equipment or reference samples.
8. The candidate may or may not be required to develop their own film. This decision will be made by the exam invigilator.
9. The candidate may ask questions concerning the examination. However, the invigilator may refuse to answer any question if it is considered part of the examination requirements.
10. The candidate has the opportunity to provide feedback concerning the practical examination. After completing the examination, the candidate is encouraged to complete the comment sheet to be sent to the NRCan NDTCB along with the completed examination by the AEC invigilator.

NOTE: If the candidate is operating unsafely or improperly while attempting their practical examination, it is the prerogative of the invigilator to discuss this situation with the candidate and, if necessary, terminate the practical examination. All such actions, as well as any special assistance given to the candidate, must be reported to the examiner on the invigilator's assessment sheet.



RT1 EMC Practical Renewal Examination Program

RT1 EMC Practical Renewal Examination Candidates shall complete the following:

1. General Safety

- Follow all the safety requirements of radiography and properly utilize the assigned examination centre equipment.

The candidate will be observed on the general safety requirements of radiography, namely: the use of a calibrated survey meter; wearing of an optically stimulated luminescent dosimeter (OSL); wearing of a direct reading dosimeter (DRD); as well as maintaining safe exposure perimeter barriers when not working within the confines of a radiographic exposure room. **These specific safety items will be a graded element and noncompliance could result in failure to be renewed as a Level 1 radiographer.**

2. Application of radiographic technique on one (1) specimen:

- Perform an inspection as per the specific technique instructions provided.
Note: The specimen/technique is assigned by the invigilator as per the directions indicated on the examination admittance and registration form.

Coverage of the exam specimen:

The limits of coverage will be indicated in the technique provided. The candidate will produce results as indicated by the technique. Upon completion of one technique **all** film, both used and unused, will be handed in to the examiner along with the sample technique. **NO** paper or film is allowed to leave the exam centre.

Suggestions for Success

1. Ensure that you carefully read all examination instructions prior to proceeding with the examination requirements.
2. Do not spend too much time on one part of the exam at the expense of the other parts. You are recommended to take:
 - 2 hours to read the general information, familiarize yourself with the equipment and accessories, and meet the general safety requirements and regulations.
 - 2 hours to inspect one (1) specimen and complete the report sheets provided.



Radiographic Testing

Level 2 All Sectors Practical Renewal Examination

General Information

Prior to the attempting the practical examination, the candidate should be aware of the following:

1. The duration of the Radiographic Testing Level 2 (RT2) practical renewal examination is 8 hours (1 day).
2. The RT2 practical renewal examination is a closed book examination. The following items are strictly **forbidden** and must be left outside the laboratory/examination room:
 - Books, notes and papers belonging to the candidate;
 - Electronic devices (cell phones, tablets, cameras, etc.);
 - Other items that could provide answers/information for examination questions/content or are capable of recording examination material.

Candidates may use a scientific calculator provided it does not contain information or established programs that provide solutions to examination problems. Candidates are forbidden from consulting the abovementioned materials and devices when leaving the examination room for a break/meal prior to completing the examination.

3. The candidate is **not** allowed to bring their own equipment or film and is **not** allowed to take the examination documents, equipment or specimen out of the laboratory/examination room. All reporting must be completed within the laboratory/ examination room.
4. The candidate will be supplied with the necessary examination equipment and accessories as per NRCAN NDTCB examination centre requirements, as well as all reporting sheets, any additional examination documents, and additional paper supplies (provided by the examination centre) as needed to complete the examination.
5. The candidate will be shown the operation and placement of equipment and accessories required to complete the examination, as well as the accessible surfaces of the exam specimen and reference samples. Candidates are advised to review the candidate instructions included with the examination documents.
6. If, for any reason, the candidate must deviate from the supplied technique, the circumstances for this deviation must be stated and supported by the exam invigilator.
7. Surface preparations are **not** permitted on the examination specimen. The candidate is requested to **not** mark the specimen, equipment or reference samples. There is no internal access for film placement on the exam specimen.
8. The candidate may or may not be required to develop their own film. This decision will be made by the exam invigilator.
9. The candidate may ask questions concerning the examination. However, the invigilator may refuse to answer any question if it is considered part of the examination requirements.
10. The candidate has the opportunity to provide feedback concerning the practical examination. After completing the examination, the candidate is encouraged to complete the comment sheet to be sent to the NRCAN NDTCB along with the completed examination by the AEC invigilator.

NOTE: If the candidate is operating unsafely or improperly while attempting their practical examination, it is the prerogative of the invigilator to discuss this situation with the candidate and, if necessary, terminate the practical examination. All such actions, as well as any special assistance given to the candidate, must be reported to the examiner on the invigilator's assessment sheet.



RT2 EMC Practical Renewal Examination Program

RT2 EMC Practical Renewal Examination Candidates shall complete the following:

1. General Safety

- Follow all the safety requirements of radiography and properly utilize the assigned examination centre equipment.

The candidate will be observed on the general safety requirements of radiography, namely: the use of a calibrated survey meter; wearing of an optically stimulated luminescent dosimeter (OSL); wearing of a direct reading dosimeter (DRD); as well as maintaining safe exposure perimeter barriers when not working within the confines of a radiographic exposure room. **These specific safety items will be a graded element and noncompliance could result in failure to be renewed as a Level 2 radiographer.**

2. Radiographic technique on one (1) specimen:

- Perform an inspection as per the specific technique instructions provided in the candidate instructions; complete all reporting sheets provided with the specimen. You are required to produce a technique for the specimen.

Note: The specimen/technique is assigned by the invigilator as per the directions indicated on the examination admittance and registration form.

The candidate will be provided with:

- one (1) exam specimen;
- the Standard Method for Radiographic Examination of Weldments, Castings and Forgings;
- a current isotope decay curve;
- film characteristic curves;
- logarithmic and anti-logarithmic tables;
- source size and effective x-ray focal spot size;
- sketches of the exam specimen;
- exposure curves; and
- sufficient radiographic film of required speeds to carry out the techniques

Note: The diagonal measurement of the source/effective focal spot is to be used for all unsharpness mathematical calculations. The candidate should be prepared to calculate this diagonal measurement.

A standard will be supplied which will identify the limitations of specific quality factors: e.g. sensitivity; unsharpness; density limitations; and penetrameter selection.

The candidate will be given adequate instruction in the operation and placement of equipment and accessories required to produce the required results safely. Although the exam centre supplies each candidate with exposure curves, it should not be assumed that the exposure curves are accurate for all exam specimens as alloying materials vary greatly from one metal to another. Following an exam test shot, the candidate is expected to have the necessary skill to quickly identify the correct exposure.

There are many different ways to radiograph an exam specimen. Grading of a specimen will be according to the guidelines of coverage, density, sensitivity attained and clarity of the technique so that Level 1 personnel would be able to follow the instructions easily.

3. Film Interpretation

The candidate will be required to interpret twelve (12) identified defect indications on the radiographs supplied.



The candidate will be provided with:

- white cotton gloves for handling these films;
- a high intensity film viewer;
- twelve (12) radiographs ; and
- sufficient radiograph reporting sheets

4. Written Instruction

Complete a written instruction for the specimen (required for **Level 2** renewal only). The instruction must be written in a way that will enable another RT inspector to easily follow your steps and duplicate your results. It should include:

- a) Foreword (scope of the inspection, reference documents, method used and field of application);
- b) Personnel qualification requirements;
- c) List of equipment, reference standards and accessories used;
- d) Product (description or drawing of the specimen, including area of interest and purpose of the test);
- e) Test conditions, including preparation for testing and equipment calibration procedure;
- f) Detailed instructions for the application of the test, including settings;
- g) Recording and classifying of the test results (report details);
- h) Reporting the results (traceability).

Note: You may use the general information accompanying the exam specimen for writing the instruction; however, you must keep in mind you are required to write a specific instruction to inspect a specific specimen. You may reference other sections in your reporting sheets as applicable.

Suggestions for Success

1. Ensure that you carefully read all examination instructions prior to proceeding with the examination requirements.
2. Do not spend too much time on one part of the exam at the expense of the other parts. You are recommended to take:
 - 1 hour to read the general information, set up and familiarize yourself with the equipment and accessories and meet the general safety requirements and regulations.
 - 2.5 hours to inspect and develop technique for one (1) specimen provided.
 - 2.5 hours to complete the film interpretation.
 - 2 hours to write an NDT instruction for the exam specimen.
3. Fill in all required information clearly and completely on the technique/reporting sheets provided. **Do not** use additional blank papers to write descriptions of techniques. There is sufficient space on the documents provided. If you require additional views to produce a more complete or comprehensive technique, you may draw the view you think is required; however, this may make the technique unclear and is not recommended. Scribbled work is subject to rejection.
4. There are many different ways to radiograph an exam specimen. Grading of the specimen will be according to the guidelines of coverage, density and sensitivity attained. The technique must be written in a way that will enable a RT1 inspector to easily follow your steps and duplicate your results.



RT Level 2 Aerospace Practical Renewal Examination Program

RT2 Aerospace Practical Renewal Examination Candidates shall complete the following:

1. General Safety

- Follow all the safety requirements of radiography and properly utilize the assigned examination centre equipment.

The candidate will be observed on the general safety requirements of radiography, namely: the use of a calibrated survey meter; wearing of an optically stimulated luminescent dosimeter (OSL); wearing of a direct reading dosimeter (DRD); as well as maintaining safe exposure perimeter barriers when not working within the confines of a radiographic exposure room. **These specific safety items will be a graded element and noncompliance could result in failure to be renewed as a Level 2 radiographer.**

2. Radiographic technique on one (1) specimen:

- Perform an inspection as per the specific technique instructions provided in the candidate instructions; complete the reporting sheets provided with the specimen. You are required to produce a technique for the specimen.

Note: The specimen/technique is assigned by the invigilator as per the directions indicated on your examination admittance and registration form.

The candidate will be provided with:

- one (1) exam specimen;
- film characteristic curves;
- logarithmic and anti-logarithmic tables;
- effective x-ray focal spot size;
- sketches of the exam specimen;
- exposure curves; and
- sufficient radiographic film of required speeds to carry out the techniques

Note: The diagonal measurement of the source/effective focal spot is to be used for all unsharpness mathematical calculations. The candidate should be prepared to calculate this diagonal measurement.

A standard will be supplied which will identify the limitations of specific quality factors: e.g. sensitivity and density limitations.

The candidate will be given adequate instruction in the operation and placement of equipment and accessories required to produce the required results safely. Although the exam centre supplies each candidate with exposure curves, it should not be assumed that the exposure curves are accurate for all exam specimens as alloying materials vary greatly from one metal to another. Following a test shot, the candidate is expected to have the necessary skill to quickly zero-in on the correct exposure.

There are many different ways to radiograph an exam specimen. Grading of a specimen will be according to the guidelines of coverage, density and clarity of the technique so that Level 1 personnel would be able to follow the instructions easily.

3. Film Interpretation

- The candidate will be required to interpret twelve (12) identified defect indications on the radiographs supplied.



The candidate will be provided with:

- white cotton gloves for handling these films;
- a high intensity film viewer;
- twelve (12) radiographs ; and
- sufficient radiograph reporting sheets

4. Written Instruction

Complete a written instruction for the specimen (required for **Level 2** renewal only). The instruction must be written in a way that will enable another RT inspector to easily follow your steps and duplicate your results. It should include:

- a) Foreword (scope of the inspection, reference documents, method used and field of application);
- b) Personnel qualification requirements;
- c) List of equipment, reference standards and accessories used;
- d) Product (description or drawing of the specimen, including area of interest and purpose of the test);
- e) Test conditions, including preparation for testing and equipment calibration procedure;
- f) Detailed instructions for the application of the test, including settings;
- g) Recording and classifying of the test results (report details);
- h) Reporting the results (traceability).

Note: You may use the general information accompanying the exam specimen for writing the instruction; however, you must keep in mind you are required to write a specific instruction to inspect a specific specimen. You may reference other sections in your reporting sheets as applicable.

Suggestions for Success

1. Ensure that you carefully read all examination instructions prior to proceeding with the examination requirements.
2. Do not spend too much time on one part of the exam at the expense of the other parts. You are recommended to take:
 - 1 hour to read the general information, set up and familiarize yourself with the equipment and accessories and meet the general safety requirements and regulations.
 - 2.5 hours to inspect and develop a technique for one (1) specimen and complete the report sheets provided.
 - 2.5 hours to complete the film interpretation.
 - 2 hours to write an NDT instruction for the exam specimen.
3. Fill in all required information clearly and completely on the technique/reporting sheets provided. **Do not** use additional blank papers to write descriptions of techniques. There is sufficient space on the documents provided. If you require additional views to produce a more complete or comprehensive technique, you may draw the view you think is required; however, this may make the technique unclear and is not recommended. Scribbled work is subject to rejection.
4. There are many different ways to radiograph an exam specimen. Grading of a specimen will be according to the guidelines of coverage, density and clarity of the technique so that Level 1 personnel would be able to follow the instructions easily.



Ultrasonic Testing

Level 1 EMC Practical Renewal Examination

General Information

Prior to the attempting the practical examination, the candidate should be aware of the following:

1. The duration of the Ultrasonic Testing Level 1 (UT1) practical renewal examination is 4 hours (½ day).
2. The UT1 practical renewal examination is a closed book examination. The following items are strictly **forbidden** and must be left outside the laboratory/examination room:
 - Books, notes and papers belonging to the candidate;
 - Electronic devices (cell phones, tablets, cameras, etc.);
 - Other items that could provide answers/information for examination questions/content or are capable of recording examination material.

Candidates may use a scientific calculator provided it does not contain information or established programs that provide solutions to examination problems. Candidates are forbidden from consulting the abovementioned materials and devices when leaving the examination room for a break/meal prior to completing the examination.

3. The candidate is **not** allowed to take the examination documents, equipment or specimen out of the laboratory/examination room. All reporting must be completed within the laboratory/ examination room.
4. The candidate will be supplied with the necessary examination equipment and accessories as per NRCan NDTCB examination centre requirements, as well as all reporting sheets, any additional examination documents, and additional paper supplies (provided by the examination centre) as needed to complete the examination.
5. The candidate will be shown the operation and placement of equipment and accessories required to complete the examination, as well as the accessible surfaces of the exam specimen and reference samples. Candidates are advised to review the candidate instructions included with the examination documents.
6. Surface preparations are **not** permitted on the examination specimen. The candidate is requested to **not** mark the specimen, equipment and reference samples.
7. The candidate may ask questions concerning the examination. However, the invigilator may refuse to answer any question if it is considered part of the examination requirements.
8. The candidate has the opportunity to provide feedback concerning the practical examination. After completing the examination, the candidate is encouraged to complete the comment sheet to be sent to the NRCan NDTCB along with the completed examination by the AEC invigilator.

NOTE: If the candidate is operating unsafely or improperly while attempting their practical examination, it is the prerogative of the invigilator to discuss this situation with the candidate and, if necessary, terminate the practical examination. All such actions, as well as any special assistance given to the candidate, must be reported to the examiner on the invigilator's assessment sheet.



UT1 EMC Practical Renewal Examination Program

UT1 EMC Practical Renewal Examination Candidates shall complete the following:

1. Complete the two (2) calibration exercises as per the instructions on the reporting sheets.

Note: Candidates must include all applicable units of measurement (metric) when recording the results of the calibration tests above.

2. Inspect one (1) specimen:

- Perform an inspection as per the specimen inspection instructions provided; find all reportable indications per designated section and complete the reporting sheets provided with the specimen.

Note: The specimen/technique is assigned by the invigilator as per the direction indicated on your examination admittance and registration form.

- Complete the reporting sheets/illustrations provided with the specimen by drawing the appearance **all** reportable indications on the illustrations provided as accurately as possible. Show the relative size, shape, length and location of the indications on the reporting sheets provided.

Suggestions for Success

1. Ensure that you carefully read all examination instructions prior to proceeding with the examination requirements.
2. Do not spend too much time on one part of the exam at the expense of the other parts. You are recommended to take:
 - 1 hour to read instructions and familiarize yourself with the equipment.
 - 1 hour to complete the calibration exercises.
 - 2 hours to inspect one (1) specimen and complete the reporting sheet provided.
3. Fill in the reporting sheets clearly, completely and concisely, ensuring that you show the correct size, shape, length and location of flaws and include all applicable units of measurement.



Ultrasonic Testing

Level 2 EMC Practical Renewal Examination

General Information

Prior to the attempting the practical examination, the candidate should be aware of the following:

1. The duration of the Ultrasonic Testing Level 2 (UT2) practical renewal examination is 8 hours (1 day).
2. The UT2 practical renewal examination is a closed book examination. The following items are strictly **forbidden** and must be left outside the laboratory/examination room:
 - Books, notes and papers belonging to the candidate;
 - Electronic devices (cell phones, tablets, cameras, etc.);
 - Other items that could provide answers/information for examination questions/content or are capable of recording examination material.

Candidates may use a scientific calculator provided it does not contain information or established programs that provide solutions to examination problems. Candidates are forbidden from consulting the abovementioned materials and devices when leaving the examination room for a break/meal prior to completing the examination.

3. The candidate is **not** allowed to take the examination documents, equipment or specimen out of the laboratory/examination room. All reporting must be completed within the laboratory/ examination room.
4. The candidate will be supplied with the necessary examination equipment and accessories as per NRCan NDTCB examination centre requirements, as well as all reporting sheets, any additional examination documents, and additional paper supplies (provided by the examination centre) as needed to complete the examination.
5. The candidate will be shown the operation and placement of equipment and accessories required to complete the examination, as well as the accessible surfaces of the exam specimen and reference samples. Candidates are advised to review the candidate instructions included with the examination documents.
6. Surface preparations are **not** permitted on the examination specimen. The candidate is requested to **not** mark the specimen, equipment and reference samples.
7. The candidate may ask questions concerning the examination. However, the invigilator may refuse to answer any question if it is considered part of the examination requirements.
8. The candidate has the opportunity to provide feedback concerning the practical examination. After completing the examination, the candidate is encouraged to complete the comment sheet to be sent to the NRCan NDTCB along with the completed examination by the AEC invigilator.

NOTE: If the candidate is operating unsafely or improperly while attempting their practical examination, it is the prerogative of the invigilator to discuss this situation with the candidate and, if necessary, terminate the practical examination. All such actions, as well as any special assistance given to the candidate, must be reported to the examiner on the invigilator's assessment sheet.



UT2 EMC Practical Renewal Examination Program

UT2 EMC Practical Renewal Examination Candidates shall complete the following:

1. Complete the two (2) calibration exercises as per the instructions on the reporting sheets.
Note: Candidates must include all applicable units of measurement (metric) when recording the results of the calibration tests above.
2. Inspect one (1) specimen:
 - Perform an inspection as per the specimen inspection instructions provided; find all reportable indications per designated section and complete the reporting sheets provided with the specimen.

Note: The specimen/technique is assigned by the invigilator as per the directions indicated on your examination admittance and registration form.

- Complete the reporting sheets/illustrations provided with the specimen by drawing the appearance **all** reportable indications on the illustrations provided as accurately as possible and make a preliminary interpretation of your findings. Show the relative size, shape, length and location of the indications on the reporting sheets provided.
 - Reported indication(s) must be accepted or rejected to the procedure provided with the exam specimen.
3. Complete a written instruction for the specimen (required for **Level 2** renewal only). The instruction must be written in a way that will enable another ultrasonic testing inspector to easily follow your steps and duplicate your results. It should include:
 - a) Foreword – Scope of the inspection (method used and limitations of the method), reference documents;
 - b) Personnel qualification requirements;
 - c) List of equipment, reference standards and accessories used.;
 - d) Product- Description or drawing of the examination specimen, including area of interest and purpose of the test;
 - e) Test conditions, including preparation for testing and equipment calibration procedures;
 - f) Detailed instructions for application of the test, including settings;
 - g) Recording and classifying of test results;
 - h) Reporting the results.

Note: You may use the general information accompanying the exam specimen for writing the instruction; however, you must keep in mind you are required to write a specific instruction to inspect a specific specimen. You may reference other sections in your reporting sheets as applicable.

Suggestions for Success

1. Ensure that you carefully read all examination instructions prior to proceeding with the examination requirements.
2. Do not spend too much time on one part of the exam at the expense of the other parts. You are recommended to take:
 - 30 minutes to read instructions and familiarize yourself with the equipment.
 - 1.5 hours to complete the performance and calibrations.
 - 4 hours to inspect one (1) specimen and complete the reporting sheets provided.
 - 2 hours to write an NDT instruction for the exam specimen.
3. Fill in the reporting sheets clearly, completely and concisely, ensuring that you show the correct size, shape, length and location of flaws and include all applicable units of measurement.



Policy and Procedure for Candidates Using Their Own Ultrasonics Equipment for Renewal Examinations

Candidates that prefer to use their own ultrasonics equipment while attempting a UT practical renewal examination **require approval** for special accommodation from the Natural Resources Canada (NRCan) National Non-Destructive Testing Certification Body (NDTCB) **prior to booking their examination** at an Authorized Examination Centre (AEC).

In order to use their own UT equipment for the renewal examination, the candidate must (in this order):

- 1) Submit a written request to the NRCan NDTCB (requests can be submitted electronically), citing the **manufacturer make and model number** of the equipment, and attaching a copy of the equipment's "operator's manual";
- 2) Receive official approval from the NRCan NDTCB **prior to booking the examination**;
- 3) Book the examination date/time with an AEC, providing the AEC with a copy of the official approval document(s) to use their own equipment, as well as the relevant pages from the "operator's manual" for the proper clearing of equipment memory. Candidates must give the AEC **at least 10 business days notice** of the special accommodation approval to use their own ultrasonics equipment, in order for the invigilator to have the necessary time to understand how to "clear" all data memories at the beginning and end of each day of the practical examination;
- 4) On the day of the examination, arrive prior to your examination with enough time for the invigilator to clear any data memory from the equipment. You must also allow the invigilator to clear any data memory from the equipment at the end of the examination.

Examination Invigilator Responsibilities

When a candidate has received approval from the NRCan NDTCB to use their own ultrasonics equipment for the UT renewal examination, the invigilator shall:

- 1) Clear the equipment of all data before and after the examination;
- 2) Document proof that the equipment has been cleared of all data before and after the examination;
- 3) Impose additional monitoring and recording of the examination as specified by the NRCan NDTCB.

Accommodations are authorized by the NRCan NDTCB on a case-by-case basis for each examination. The NRCan NDTCB reserves the right to reject a candidate's request to use their own equipment if the Certification Body determines that the equipment's memory cannot be adequately cleared or that the equipment may provide an unfair advantage to the candidate. If the candidate fails to meet the above deadline to notify the AEC of the accommodation approval, they will not be allowed to use their own equipment or must schedule the exam for a later date.

Note: Candidates may be subject to any additional fees incurred at the examination centre to provide this accommodation. Additional monitoring and recording may be imposed by the AEC and the NDTCB to ensure the integrity of the examination process due to this accommodation.

If it is discovered that at any time during or after the examination the candidate deliberately mislead the invigilator on the procedure for clearing the memory or attempted to leave the testing facility with exam information in the equipment's memory, or did not otherwise abide by the examination rules or perpetrates/is an accessory to fraudulent conduct, the candidate will be subject to disciplinary action in accordance with the **NRCan NDTCB Procedure for Code of Conduct Violations**.

Candidates using their own ultrasonics equipment for their renewal examination are expected to successfully complete all components of the renewal examination and meet the minimum reporting requirements of the renewal examination in order to receive a passing grade. The candidate assumes all responsibility for the working state of the equipment, and any direct or indirect issues (costs) borne by the candidate and the AEC. Should the equipment fail during the examination, the candidate assumes full liability and will not have grounds to appeal the examination process or the results.



Magnetic Testing

Level 2 EMC Practical Renewal Exam

General Information

Prior to the attempting the practical examination, the candidate should be aware of the following:

1. The duration of the Magnetic Testing Level 2 (MT2) practical renewal examination is 4 hours (½ day).
2. The MT2 practical renewal examination is a closed book examination. The following items are strictly **forbidden** and must be left outside the laboratory/examination room:
 - Books, notes and papers belonging to the candidate;
 - Electronic devices (cell phones, tablets, cameras, etc.);
 - Other items that could provide answers/information for examination questions/content or are capable of recording examination material.

Candidates may use a scientific calculator provided it does not contain information or established programs that provide solutions to examination problems. Candidates are forbidden from consulting the abovementioned materials and devices when leaving the examination room for a break/meal prior to completing the examination.

3. The candidate is **not** allowed to take the examination documents, equipment or specimen out of the laboratory/examination room. All reporting must be completed within the laboratory/ examination room.
4. The candidate will be supplied with the necessary examination equipment and accessories as per NRCan NDTCB examination centre requirements, as well as all reporting sheets, any additional examination documents, and additional paper supplies (provided by the examination centre) as needed to complete the examination.
5. The candidate will be shown the operation and placement of equipment and accessories required to complete the examination, as well as the accessible surfaces of the exam specimen and reference samples. Candidates are advised to review the candidate instructions included with the examination documents.
6. Surface preparations are **not** permitted on the examination specimen. The candidate is requested to **not** mark the specimen, equipment or reference samples.
7. The candidate may ask questions concerning the examination. However, the invigilator may refuse to answer any question if it is considered part of the examination requirements.
8. The candidate has the opportunity to provide feedback concerning the practical examination. After completing the examination, the candidate is encouraged to complete the comment sheet to be sent to the NRCan NDTCB along with the completed examination by the AEC invigilator.

NOTE: If the candidate is operating unsafely or improperly while attempting their practical examination, it is the prerogative of the invigilator to discuss this situation with the candidate and, if necessary, terminate the practical examination. All such actions, as well as any special assistance given to the candidate, must be reported to the examiner on the invigilator's assessment sheet.



MT2 EMC Practical Renewal Examination Program

MT2 EMC Practical Renewal Examination Candidates shall complete the following:

1. Perform one (1) calibration/performance test
 - Measure and record the highest black **or** white light intensity. Ensure that the measured intensity meets the minimum required before proceeding with the examination.

Note: Candidates must include all applicable units of measure when recording the results of the calibration/performance tests above.
2. Inspect one (1) specimen:
 - Perform an inspection on the specimen with a yoke using magnetic particle fluid or using the wet fluorescent method for the wet bench; find all reportable indications and complete the reporting sheets provided with the specimen.

Notes:

 - a. The yoke is only to be used for the yoke specimen. Invigilators have been instructed to terminate the examination if the yoke is used on any other parts.
 - b. The specimen/technique is assigned by the invigilator as per the directions indicated on the examination admittance and registration form.
 - Complete the reporting sheets/illustrations provided with the specimen by drawing the appearance all indications on the illustrations provided as accurately as possible and make a preliminary interpretation of your findings. Show the relative size, shape, length and location of the indications. When necessary, draw a sketch of a missing view.
 - Evaluate (accept/reject) the specimen according to the Evaluation Criteria Procedure in the Candidate Instructions.
 - Demagnetize the exam specimen at the completion of the exam.
3. Complete a written instruction for the specimen (required for **Level 2** renewal only). The instruction must be written in a way that will enable another magnetic testing inspector to easily follow your steps and duplicate your results. It should include:
 - a) Foreword – Scope of the inspection (method used and limitations of the method), reference documents;
 - b) Personnel qualification requirements;
 - c) List of equipment, reference standards and accessories used;
 - d) Product - Description or drawing of the examination specimen, including area of interest and purpose of the test;
 - e) Test conditions, including preparation for testing and equipment calibration procedures;
 - f) Detailed instructions for the application of the test, including settings;
 - g) Recording and classifying of test results;
 - h) Reporting the results.

Note: You may use the general information accompanying the exam specimen for writing the instruction; however, you must keep in mind you are required to write a specific instruction to inspect a specific specimen. You may reference other sections in your reporting sheets as applicable.

Suggestions for Success

1. Ensure that you carefully read all examination instructions prior to proceeding with the examination requirements.
2. Do not spend too much time on one section of the exam at the expense of the other sections. You are recommended to take:
 - 1 hour to read instructions and familiarize yourself with the requirements and the equipment and conduct the calibration/performance test.
 - 1.5 hours to inspect one (1) specimen and complete the reporting sheets provided.
 - 1.5 hours to write an NDT instruction for the exam specimen.
3. Fill in the reporting sheets clearly, completely and concisely, ensuring that you show the correct size, shape, length and location of flaws and include all applicable units of measurement.



Penetrant Testing

Level 2 EMC Practical Renewal Examination

General Information

Prior to the attempting the practical examination, the candidate should be aware of the following:

1. The duration of the Penetrant Testing Level 2 (PT2) practical renewal examination is 4 hours (½ day).
2. The PT2 practical renewal examination is a closed book examination. The following items are strictly **forbidden** and must be left outside the laboratory/examination room:
 - Books, notes and papers belonging to the candidate;
 - Electronic devices (cell phones, tablets, cameras, etc.);
 - Other items that could provide answers/information for examination questions/content or are capable of recording examination material.

Candidates may use a scientific calculator provided it does not contain information or established programs that provide solutions to examination problems. Candidates are forbidden from consulting the abovementioned materials and devices when leaving the examination room for a break/meal prior to completing the examination.

3. The candidate is **not** allowed to take the examination documents, equipment or specimen out of the laboratory/examination room. All reporting must be completed within the laboratory/ examination room.
4. The candidate will be supplied with the necessary examination equipment and accessories as per NRCAN NDTCB examination centre requirements, as well as all reporting sheets, any additional examination documents, and additional paper supplies (provided by the examination centre) as needed to complete the examination.
5. The candidate will be shown the operation and placement of equipment and accessories required to complete the examination, as well as the accessible surfaces of the exam specimen and reference samples. Candidates are advised to review the candidate instructions included with the examination documents.
6. Surface preparations are **not** permitted on the examination specimen. The candidate is requested to **not** mark the specimen, equipment or reference samples.
7. The candidate may ask questions concerning the examination. However, the invigilator may refuse to answer any question if it is considered part of the examination requirements.
8. The candidate has the opportunity to provide feedback concerning the practical examination. After completing the examination, the candidate is encouraged to complete the comment sheet to be sent to the NRCAN NDTCB along with the completed examination by the AEC invigilator.

NOTE: If the candidate is operating unsafely or improperly while attempting their practical examination, it is the prerogative of the invigilator to discuss this situation with the candidate and, if necessary, terminate the practical examination. All such actions, as well as any special assistance given to the candidate, must be reported to the examiner on the invigilator's assessment sheet.



PT2 EMC Practical Renewal Examination Program

PT2 EMC Practical Renewal Examination Candidates shall complete the following:

1. Perform one (1) calibration/performance test.
 - Measure and record the highest black **or** white light intensity. Ensure that the measured intensity meets the minimum required before proceeding with the examination.
 - When the black light intensity is measured, the measurement must be taken at the distance of 38 cm (15 inches) from the UV light source. Use of hand-held UV flashlights for the performance check is forbidden. (Ref.: ASTM E 1417)

Note: Candidates must include all applicable units of measure when recording the results of the calibration/performance tests above.
2. Inspect one (1) specimen:
 - Perform an inspection on the specimen using fluorescent penetrants or colour contrast; find all reportable indications and complete the reporting sheets provided with the specimen.
 - Specimen for the colour contrast (visible) technique must be tested by solvent removable penetrant and aerosol spray developer only. Specimen for the fluorescent technique must be tested by either water-washable or post-emulsifiable penetrants.
 - The specimen/technique is assigned by the invigilator as per the directions indicated on the examination admittance and registration form.
 - Complete the reporting sheets/illustrations provided with the specimen by drawing the appearance of **all** indications (using red pen) on the illustrations provided as accurately as possible and make a preliminary interpretation of your findings. Show the relative size, shape, length and location of the indications. The actual measurement of the indication(s) found is not required. When necessary, draw a sketch of a missing view.
 - Evaluate (accept/reject) the specimen according to the Evaluation Criteria Procedure in the Candidate Instructions.
3. Complete a written instruction for the specimen (required for **Level 2** renewal only). The instruction must be written in a way that will enable another penetrant testing inspector to easily follow your steps and duplicate your results. It should include:
 - a) Foreword – Scope of the inspection (method used and limitations of the method), reference documents;
 - b) Personnel qualification requirements;
 - c) List of equipment, reference standards and accessories used;
 - d) Product- Description or drawing of the examination specimen, including area of interest and purpose of the test;
 - e) Test conditions, including preparation for testing and equipment calibration procedures;
 - f) Detailed instructions for application of the test, including settings;
 - g) Recording and classifying of test results;
 - h) Reporting the results.

Note: You may use the general information accompanying the exam specimen for writing the instruction; however, you must keep in mind you are required to write a specific instruction to inspect a specific specimen. You may reference other sections in your reporting sheets as applicable.

Suggestions for Success

1. Ensure that you carefully read all examination instructions prior to proceeding with the examination requirements.
2. Do not spend too much time on one section of the exam at the expense of the other sections. You are recommended to take:
 - 1 hour to read instructions and familiarize yourself with the requirements and the equipment and conduct the calibration/performance test.
 - 1.5 hours to inspect one (1) specimen and complete the reporting sheets provided.
 - 1.5 hours to write an NDT instruction for the exam specimen.
3. Fill in the reporting sheets clearly, completely and concisely, ensuring that you show the correct size,

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shape, length and location of flaws and include all applicable units of measurement.

Eddy Current Testing

Level 1 EMC Practical Renewal Examination

General Information

Prior to the attempting the practical examination, the candidate should be aware of the following:

1. The duration of the Eddy Current Testing Level 1 (ET1) practical renewal examination is 4 hours (½ day).
2. The ET1 practical renewal examination is a closed book examination. The following items are strictly **forbidden** and must be left outside the laboratory/examination room:
 - Books, notes and papers belonging to the candidate;
 - Electronic devices (cell phones, tablets, cameras, etc.);
 - Other items that could provide answers/information for examination questions/content or are capable of recording examination material.

Candidates may use a scientific calculator provided it does not contain information or established programs that provide solutions to examination problems. Candidates are forbidden from consulting the abovementioned materials and devices when leaving the examination room for a break/meal prior to completing the examination.

3. The candidate is **not** allowed to take the examination documents, equipment or specimen out of the laboratory/examination room. All reporting must be completed within the laboratory/ examination room.
4. The candidate will be supplied with the necessary examination equipment and accessories as per NRCan NDTCB examination centre requirements, as well as all reporting sheets, any additional examination documents, and additional paper supplies (provided by the examination centre) as needed to complete the examination.
5. The candidate will be shown the operation and placement of equipment and accessories required to complete the examination, as well as the accessible surfaces of the exam specimen and reference samples. Candidates are advised to review the candidate instructions included with the examination documents.
6. Surface preparations are **not** permitted on the examination specimen. The candidate is requested to **not** mark the specimen, equipment and reference samples.
7. The candidate may ask questions concerning the examination. However, the invigilator may refuse to answer any question if it is considered part of the examination requirements.
8. The candidate has the opportunity to provide feedback concerning the practical examination. After completing the examination, the candidate is encouraged to complete the comment sheet to be sent to the NRCan NDTCB along with the completed examination by the AEC invigilator.

NOTE: If the candidate is operating unsafely or improperly while attempting their practical examination, it is the prerogative of the invigilator to discuss this situation with the candidate and, if necessary, terminate the practical examination. All such actions, as well as any special assistance given to the candidate, must be reported to the examiner on the invigilator's assessment sheet.



ET1 EMC Practical Renewal Examination Program

ET1 EMC Practical Renewal Examination Candidates shall complete the following:

1. Perform the calibrations required as per the specimen inspection instructions.
2. Inspect one (1) specimen:
 - Perform an inspection on the specimen as per the specimen inspection instructions provided; find all reportable indications and complete the reporting sheet provided with the specimen.

Note: The specimen/technique is assigned by the invigilator as per the directions indicated on your examination admittance and registration form.

 - Complete the reporting sheets/illustrations provided with the specimen by drawing the appearance **all** indications on the illustrations provided as accurately as possible. Show the relative size, shape, length and location of the indications. When necessary, draw a sketch of a missing view.

Suggestions for Success

1. Ensure that you carefully read all examination instructions prior to proceeding with the examination requirements.
2. Do not spend too much time on one part of the exam at the expense of the other parts. You are recommended to take:
 - 1 hour to read instructions and familiarize yourself with the equipment.
 - 1 hour to complete the calibration exercises.
 - 2 hours to inspect one (1) specimen and complete the reporting sheet provided.
3. Fill in the reporting sheets clearly, completely and concisely, ensuring that you show the correct size, shape, length and location of flaws and include all applicable units of measurement.



Eddy Current

Level 2 EMC Practical Renewal Examination

General Information

Prior to attempting the practical examination, the candidate should be aware of the following:

1. The duration of the Eddy Current Testing Level 2 (ET2) practical renewal examination is 8 hours (1 day).
2. The ET2 practical renewal examination is a closed book examination. The following items are strictly **forbidden** and must be left outside the laboratory/examination room:
 - Books, notes and papers belonging to the candidate;
 - Electronic devices (cell phones, tablets, cameras, etc.);
 - Other items that could provide answers/information for examination questions/content or are capable of recording examination material.

Candidates may use a scientific calculator provided it does not contain information or established programs that provide solutions to examination problems. Candidates are forbidden from consulting the abovementioned materials and devices when leaving the examination room for a break/meal prior to completing the examination.

3. The candidate is **not** allowed to take the examination documents, equipment or specimen out of the laboratory/examination room. All reporting must be completed within the laboratory/ examination room.
4. The candidate will be supplied with the necessary examination equipment and accessories as per NRCan NDTCB examination centre requirements, as well as all reporting sheets, any additional examination documents, and additional paper supplies (provided by the examination centre) as needed to complete the examination.
5. The candidate will be shown the operation and placement of equipment and accessories required to complete the examination, as well as the accessible surfaces of the exam specimen and reference samples. Candidates are advised to review the candidate instructions included with the examination documents.
6. Surface preparations are **not** permitted on the examination specimen. The candidate is requested to **not** mark the specimen, equipment and reference samples.
7. The candidate may ask questions concerning the examination. However, the invigilator may refuse to answer any question if it is considered part of the examination requirements.
8. The candidate has the opportunity to provide feedback concerning the practical examination. After completing the examination, the candidate is encouraged to complete the comment sheet to be sent to the NRCan NDTCB along with the completed examination by the AEC invigilator.

NOTE: If the candidate is operating unsafely or improperly while attempting their practical examination, it is the prerogative of the invigilator to discuss this situation with the candidate and, if necessary, terminate the practical examination. All such actions, as well as any special assistance given to the candidate, must be reported to the examiner on the invigilator's assessment sheet.



ET2 EMC Practical Renewal Examination Program

ET2 EMC Practical Renewal Examination Candidates shall complete the following:

1. Perform the calibrations required as per the specimen inspection instructions.
2. Inspect one (1) specimen:
 - Perform an inspection on the specimen as per the specimen inspection instructions provided; find all reportable indications and complete the reporting sheets provided with the specimen.
Note: The specimen/technique is assigned by the invigilator as per the directions indicated on your examination admittance and registration form.
 - Complete the reporting sheets/illustrations provided with the specimen by drawing the appearance all reportable indications on the illustrations provided as accurately as possible and make a preliminary interpretation of your findings. Show the relative size, shape, length and location of the indications. When necessary, draw a sketch of a missing view.
3. Complete a written instruction for the specimen (required for **Level 2** renewal only). The instruction must be written in a way that will enable another eddy current testing inspector to easily follow your steps and duplicate your results. It should include:
 - a) Foreword – Scope of the inspection (method used and limitations of the method), reference documents;
 - b) Personnel qualification requirements;
 - c) List of equipment, reference standards and accessories used;
 - d) Product - Description or drawing of the examination specimen, including area of interest and purpose of the test;
 - e) Test conditions, including preparation for testing and equipment calibration procedures;
 - f) Detailed instructions for application of the test, including settings;
 - g) Recording and classifying of test results;
 - h) Reporting the results.

Note: You may use the general information accompanying the exam specimen for writing the instruction; however, you must keep in mind you are required to write a specific instruction to inspect a specific specimen. You may reference other sections in your reporting sheets as applicable.

IMPORTANT NOTICE: Inspection of Fastened Assembly

If you inspect the fastener holes, you will find some which are definitely flawed, others which are definitely sound. Identify the flawed fastener holes on the sketch provided. There will be cases where the signal obtained from a fastener hole is so small that it will be difficult to interpret. Indicate such discrepancies on the sketch and explain the source of the signal. The NDTCB examiner is looking for a "reasonable" explanation and not necessarily the "accurate" explanation.

Suggestions for Success

1. Ensure that you carefully read all examination instructions prior to proceeding with the examination requirements.
2. Do not spend too much time on one part of the exam at the expense of the other parts. You are recommended to take:
 - 30 minutes to read instructions and familiarize yourself with the equipment.
 - 1.5 hours to complete the calibrations.
 - 4 hours to inspect one (1) specimen and complete the reporting sheet provided.
 - 2 hours to write an NDT instruction for the exam specimen.
3. Fill in the reporting sheets clearly, completely and concisely, ensuring that you show the correct size, shape, length and location of flaws and include all applicable units of measurement.



Policy and Procedure for Candidates Using Their Own Eddy Current Equipment for Renewal Examinations

Candidates that prefer to use their own Eddy Current equipment while attempting an ET practical renewal examination **require approval** for special accommodation from the Natural Resources Canada (NRCan) National Non-Destructive Testing Certification Body (NDTCB) **prior to booking their examination** at an Authorized Examination Centre (AEC).

In order to use their own ET equipment for the renewal examination the candidate must (in this order):

- 1) Submit a written request to the NRCan NDTCB (requests can be submitted electronically), citing the **manufacturer make and model number** of the equipment, and attaching a copy of the equipment's "operator's manual";
- 2) Receive official approval from the NRCan NDTCB **prior to booking the examination**;
- 3) Book the examination date/time with an AEC, providing the AEC with a copy of the official approval document(s) to use their own equipment, as well as the relevant pages from the "operator's manual" for the proper clearing of equipment memory. Candidates must give the AEC **at least 10 business days notice** of the special accommodation approval to use their own Eddy Current equipment, in order for the invigilator to have the necessary time to understand how to "clear" all data memories at the beginning and end of each day of the practical examination;
- 4) On the day of the examination, arrive prior to your examination with enough time for the invigilator to clear any data memory from the equipment. You must also allow the invigilator to clear any data memory from the equipment at the end of the examination.

Examination Invigilator Responsibilities

When a candidate has received approval from the NRCan NDTCB to use their own Eddy Current equipment for the ET renewal examination, the invigilator shall:

- 1) Clear the equipment of all data before and after the examination;
- 2) Document proof that the equipment has been cleared of all data before and after the examination;
- 3) Impose additional monitoring and recording of the examination as specified by the NRCan NDTCB.

Accommodations are authorized by the NRCan NDTCB on a case-by-case basis for each examination. The NRCan NDTCB reserves the right to reject a candidate's request to use their own equipment if the Certification Body determines that the equipment's memory cannot be adequately cleared or that the equipment may provide an unfair advantage to the candidate. If the candidate fails to meet the above deadline to notify the AEC of the accommodation approval, they will not be allowed to use their own equipment or must schedule the exam for a later date.

Note: Candidates may be subject to any additional fees incurred at the examination centre to provide this accommodation. Additional monitoring and recording may be imposed by the AEC and the NDTCB to ensure the integrity of the examination process due to this accommodation.

If it is discovered that at any time during or after the examination the candidate deliberately misled the invigilator on the procedure for clearing the memory or attempted to leave the testing facility with exam information in the equipment's memory, or did not otherwise abide by the examination rules or perpetrates/is an accessory to fraudulent conduct, the candidate will be subject to disciplinary action in accordance with the **NRCan NDTCB Procedure for Code of Conduct Violations.**

Candidates using their own Eddy Current equipment for their renewal examination are expected to successfully complete all components of the renewal examination and meet the minimum reporting requirements of the renewal examination in order to receive a passing grade. The candidate assumes all responsibility for the working state of the equipment, and any direct or indirect issues (costs) borne by the candidate and the AEC. Should the equipment fail during the examination, the candidate assumes full liability and will not have grounds to appeal the examination process or the results.



Ultrasonic Testing Phased Array (UT-PA) Level 2

Level 2 EMC Practical Renewal Examination

General Information

Prior to the attempting the practical examination, the candidate should be aware of the following:

1. The duration of the UT-PA Level 2 practical renewal examination is 8 hours (1 day).
2. The UT-PA level 2 practical renewal examination is a closed book examination. The following items are strictly **forbidden** and must be left outside the laboratory/examination room:
 - Books, notes and papers belonging to the candidate;
 - Electronic devices (cell phones, tablets, cameras, etc.);
 - Other items that could provide answers/information for examination questions/content or are capable of recording examination material.

Candidates may use a scientific calculator provided it does not contain information or established programs that provide solutions to examination problems. Candidates are forbidden from consulting the abovementioned materials and devices when leaving the examination room for a break/meal prior to completing the examination.

3. The candidate is **not** allowed to take the examination documents, equipment or specimen out of the laboratory/examination room. All reporting must be completed within the laboratory/ examination room.
4. The candidate will be supplied with the necessary examination equipment and accessories as per NRCan NDTCB examination centre requirements, as well as all reporting sheets, any additional examination documents, and additional paper supplies (provided by the examination centre) as needed to complete the examination.
5. The candidate will be shown the operation and placement of equipment and accessories required to complete the examination, as well as the accessible surfaces of the exam specimen and reference samples. Candidates are advised to review the candidate instructions included with the examination documents.
6. Surface preparations are **not** permitted on the examination specimen. The candidate is requested to **not** mark the specimen, equipment and reference samples.
7. The candidate may ask questions concerning the examination. However, the invigilator may refuse to answer any question if it is considered part of the examination requirements.
8. The candidate has the opportunity to provide feedback concerning the practical examination. After completing the examination, the candidate is encouraged to complete the comment sheet to be sent to the NRCan NDTCB along with the completed examination by the AEC invigilator.

NOTE: If the candidate is operating unsafely or improperly while attempting their practical examination, it is the prerogative of the invigilator to discuss this situation with the candidate and, if necessary, terminate the practical examination. All such actions, as well as any special assistance given to the candidate, must be reported to the examiner on the invigilator's assessment sheet.



UT-PA level 2 EMC Practical Renewal Examination Program

UT-PA level 2 EMC Practical Renewal Examination Candidates shall complete the following:

1. Perform the calibrations required as per the calibration reporting sheet.
2. Inspect one (1) specimen:
 - Perform an inspection on the specimen as per the specimen inspection instructions provided. Find all reportable indications and complete the reporting sheets provided with the specimen.

Note: The specimen/technique is assigned by the invigilator as per the directions indicated on the examination admittance and registration form.

- Complete the reporting sheets/illustrations provided with the specimen by drawing **all** reportable indications on the illustrations provided as accurately as possible and make a preliminary interpretation of your findings. Show the relative size, shape, length and location of the indications. When necessary, draw a sketch of a missing view.
- Complete a written instruction for the inspected specimen. The instruction must be written in a way that will enable another ultrasonic testing phased array inspector to easily follow your steps and duplicate your results. It should include:
 - a) Foreword – Scope of the inspection (method used and limitations of the method), reference documents;
 - b) Personnel qualification requirements;
 - c) List of equipment, reference standards and accessories used;
 - d) Product - Description or drawing of the examination specimen, including area of interest and purpose of the test;
 - e) Test conditions, including preparation for testing and equipment calibration procedures;
 - f) Detailed instructions for application of the test, including settings (Include the Probe position with respect to the weld centerline calculation for the first focal law to cover the heat affected zone.);
 - g) Recording and classifying of test results;
 - h) Reporting the results.

Note: You may use the general information accompanying the exam specimen for writing the instruction; however, you must keep in mind you are required to write a specific instruction to inspect a specific specimen. You may reference other sections in your reporting sheets as applicable.

Suggestions for Success

1. Ensure that you carefully read all examination instructions prior to proceeding with the examination requirements.
2. Do not spend too much time on one part of the exam at the expense of the other parts. You are recommended to take:
 - 30 minutes to read instructions and familiarize yourself with the equipment.
 - 1.5 hours to complete the calibrations.
 - 4 hours to inspect one (1) specimen and complete the reporting sheet provided.
 - 2 hours to write an NDT instruction for the exam specimen.
3. Fill in the reporting sheets clearly, completely and concisely, ensuring that you show the correct size, shape, length and location of flaws and include all applicable units of measurement.



Policy and Procedure for Candidates Using Their Own Ultrasonic Testing Phased Array Instruments for Renewal Examinations

Candidates that prefer to use their own ultrasonics equipment while attempting a UT-PA practical renewal examination **require approval** for special accommodation from the Natural Resources Canada (NRCan) National Non-Destructive Testing Certification Body (NDTCB) **prior to booking their examination** at an Authorized Examination Centre (AEC).

In order to use their own UT-PA equipment for the renewal examination, the candidate must (in this order):

1. Submit a written request to the NRCan NDTCB (requests can be submitted electronically), citing the **manufacturer make and model number** of the instrument and the relevant pages from the "operator's manual" for the proper clearing of instrument memory;
2. Receive official approval from the NRCan NDTCB **prior to booking the examination**;
3. Book the examination date/time with an AEC, providing the AEC with a copy of the official approval document(s) to use candidate's own equipment, as well as the relevant pages from the "operator's manual" for the proper clearing of equipment memory. Candidates must give the special accommodation approval to use own ultrasonics equipment to the AEC **at least 10 business days** prior to their scheduled examination, in order for the invigilator to have the necessary time to understand how to "clear" all data memories at the beginning and end of each day of the practical examination;
4. On the day of the examination, arrive prior to your examination with enough time for the invigilator to clear any data memory from the equipment. You must also allow the invigilator to clear any data memory from the equipment at the end of the examination.

Examination Invigilator Responsibilities

When candidate received approval from the NRCan NDTCB to use their own ultrasonics equipment for the UT-PA renewal examination, the invigilator shall:

1. Clear the equipment of all data before and after the examination;
2. Document proof that the equipment has been cleared of all data before and after the examination;
3. Impose additional monitoring and recording of the examination as specified by the NRCan NDTCB.

Accommodations are authorized by the NRCan NDTCB on a case-by-case basis for each examination. The NRCan NDTCB reserves the right to reject candidate's request to use their own equipment if the Certification Body determines that the equipment's memory cannot be adequately cleared or that the equipment may provide an unfair advantage to the candidate. If the candidate fails to meet the above deadline to notify the AEC of the accommodation approval, they will not be allowed to use their own equipment or must schedule the exam for a later date.

Note: Candidates may be subject to any additional fees incurred at the examination centre to provide this accommodation. Additional monitoring and recording may be imposed by the AEC and the NDTCB to ensure the integrity of the examination process due to this accommodation.

If it is discovered that at any time during or after the examination the candidate deliberately mislead the invigilator on the procedure for clearing the memory or attempted to leave the testing facility with exam information in the equipment's memory or did not otherwise abide by the examination rules or perpetrates/is an accessory to fraudulent conduct, the candidate will be subject to disciplinary action in accordance with the **NRCan NDTCB Procedure for Code of Conduct Violations** and associated NDTCB-Government of Canada policies

Candidates using their own ultrasonics equipment for their renewal examination are expected to successfully complete all components of the renewal examination and meet the minimum reporting requirements of the renewal examination to receive a passing grade. The candidate assumes all responsibility for the working state of the equipment, and any direct or indirect issues (costs) borne by the candidate and the AEC. Should the equipment fail during the examination, the candidate assumes full liability and will not have grounds to appeal the examination process or the results.



Level 3 All Methods

Level 3 Renewal Practical Examinations for All Methods and Sectors

- Complete the level 2 practical renewal examination for the corresponding method/sector for which Level 3 renewal is being sought **EXCEPT for the Written Instruction** component.
- Information about level 2 practical renewal examinations is contained in the pages above.

Important Note:

The written instruction component of the Level 2 practical renewal examination is not required for Level 3 renewal.