

## Rules Governing Issue, Renewal, Addition And Evaluation of Non Destructive Testing Ratings

### 65.131 General

The aim of this part is to provide the ECAA requirements for NDT personnel training programs, experience, examination, and certification

### 65.135 Definitions

For the purposes of this international standard, the following definitions apply

- (a) *Authorization*. A permission to work issued by the employer or responsible agency based on the individual's suitability for a specific job. In addition to the certification, amongst others the job-specific knowledge, skill and physical ability could be assessed.
- (b) *Qualification*. A demonstration of the knowledge, skill, training and experience required to properly perform NDT tasks.
- (c) *Certification*. The procedures leading to a written testimony of the qualification of an individual's competence in an NDT method.
- (d) *Certificate*. . Written testimony of qualification.
- (e) *Candidate*. The individual seeking certification under the qualification and certification scheme.
- (f) *Employer*. or responsible agency The organization for which the candidate works on a regular basis; candidates may be self-employed.
- (g) *Basic education*. The minimum formal education required for qualification; it may be used to determine duration and level of training and experience required prior to qualification.
- (h) *NDT training*. A process of instruction in theory and practice in the NDT method in which certification is being sought, which may take the form of training courses to an approved syllabus and periods of practical work under qualified supervision but shall not include the use of specimens used in the practical examination.
- (i) *experience*. The period during which the candidate performed the specific NDT method as his main activity under qualified supervision including personal application of the NDT method to materials, parts or structures but including tests performed during training courses.
- (j) *NDT method*. The discipline associated with applying a physical principle in nondestructive testing (for example, ultrasonic testing).
- (k) *NDT technique*. A specific way of utilizing an NDT method (for example, immersion Ultrasonic testing).
- (l) *NDT procedure*. An orderly sequence of rules which describes in detailed terms where, how and in which sequence an NDT method should be applied to a product.
- (m) *NDT instruction*. A written document detailing the precise steps to be followed in testing to an NDT procedure.
- (n) *Qualification Examination* An examination administered by the national certifying body or an authorized qualifying body, which shall include a general examination and a specific examination for each level of competence.
- (o) *general examination*. The general examination includes both a written and a practical part for levels 1 and 2, and only a written part for level 5. (a) The written test is concerned with the principles of the applicable NDT method and, at least for level 3, covers basic knowledge of other NDT methods, of materials and processes, and of discontinuities arising through the use of various materials, manufacturing processes or service conditions. For level 3, the requirements for certification of NDT personnel

are also included. (b) The practical test for levels 1 and 2 is to verify ability to set-up and operate test equipment, and perform the necessary settings to yield satisfactory test results.

- (p) *specific examination*. The specific examination includes both a written and a practical part for levels 1 and 2, and only two written parts for level 3. (a) The written test is concerned with components, systems, equipment, operating procedures and test techniques commonly used in a particular industry or industrial sector. It involves the demonstration of knowledge related to the product being tested and covers the applicable specifications, codes and acceptance criteria. For level 3 only, this examination includes the writing of one or more satisfactory procedures. (b) The practical test involves, for levels 1 and 2, the demonstration of familiarity with and the ability to operate the necessary test equipment on prescribed components, record and analyze the resultant information to the degree required.
- (q) *trainee*. A trainee is an individual who works under supervision of certified personnel but who does not conduct any tests independently, not interpret test results and does not write reports of test results. He may be registered as being in the process of gaining appropriate experience to establish eligibility for qualification to level 1 or for direct access to level 2.

#### 65.136 Related Ndt Methods :

1- Acoustic Emission Testing	( AE)
2- Eddy Current Testing	( ET )
3- Leak Testing	( LT )
4- Liquid Penetrate Testing	( PT )
5-Magnetic Particle Testing	( MT)
6-Neutron Radiographic Testing	(NRT)
7-Radiographic Testing	( RT)
8-Thermal/Infrared Testing	(TIR)
9- Ultrasonic Testing	( UT )
10- Visual Testing	( VT)

**NOTE** those methods will be reviewed whenever a new method is established internationally

#### 65.137 Levels Of Qualification :

- (a) There are three levels of qualification levels I, II and III .

##### **Level I:**

Personnel competent in the application of prescribed techniques who, to an extent determined by individual company's quality procedures , are under the general supervision of level II or level III personnel . level I personnel shall have no discretion in either the interpretation or the reporting of results. techniques shall specify the test equipment to be used and provide specific information on calibration procedures, inspection requirements and acceptable /rejection criteria.

##### **Level II:**

Personnel competent to set up and calibrate test equipment ,interpret , evaluate, report and certify results in accordance with prescribed techniques. level II personnel shall be sufficiently familiar with the scope and limitations of the NDT method to be able

to supervise the work of level I personnel .where level II personnel are required to formulate technique ,a technique formulation endorsement is required.

**Level III :**

Personnel shall be capable of preparing , prescribing and approving procedures and techniques ,interpreting relevant codes , standards and specifications : analyzing results and assisting in establishing inspection criteria where none are specified . they shall have general familiarity with all other NDT methods and if required to test products and structure must hold a current level II certificate. they should be capable of supervising and exercising technical control of level I and II personnel.

**NOTE :** while in the process of being initially trained for qualification and certification individual should be considered a TRAINEE . A trainee should work with a certified individual . the trainee shall not independently conduct ,interpret, evaluate, or report the results of any NDT.

**65.139 Written Tests Requirements :**

all level I , II and III written examinations should be closed .book except that necessary data such as graphs ,tables ,etc.

**65.141 Eligibility Training And Experience**

*Minimum Requirements*

For level I and II the table below will lists the minimum training and experience requirements

Examination Method	Level	Training ( Hours )		Experience Or On Job Training (Months)
		For Technical School Or Equivalent	License Without Type Rating Or Holders Of (A And C) License	
ET	I	40	40	3
	II		80	9
MT	I	24	24	3
	II		40	6
PT	I	16	16	3
	II		40	6
RT	I	40	40	3
	II		80	9
TIR	I	40	40	3
	II		40	18
UT	I	40	40	3
	II		80	9
VT	I	16	16	3
	II		24	6

**NOTES:**

(1) for level II certification, the experience shall consist of time at level I or equivalent if a person is being qualified directly to level II with no time at level I , the required experience shall consist of the sum of the times required for level I and level II.

and the required training shall consist of the sum of the hours required for level I and level II

- (2) initial experience may be gained simultaneously in two methods if the candidate spends a minimum of 50% of work time on each method for which certification is sought
- (3) the minimum number of samples or OJT per month are 8 different samples for each method

#### 65.143 NDT Level I Qualification And Certification

The qualification ,certification and certification renewal shall be the responsibility of the employer examining authority ( in approved maintenance organization ) or approved training center.

#### 65.145 NDT Level II Certification

For NDT level II certificate the individual shall pass three examination (General , specific & practical exam ) with the following minimum( M .C . Q ) questions

METHOD	No. of questions for general exam	No. of questions for specific exam
RT	40	20
U T	40	20
E T	40	20
MT	30	15
PT	30	15
TIR	40	20
VT	30	20

#### 65.147 NDT Level II Examination Administration

General and specific exams administration grading shall be the responsibility of ECCA .the practical exam shall administrated by authorized examining committee consist of NDT level III personnel or qualified representative of NDT level III personnel and ECCA representative

#### 65.149 NDT Level II Privileges And Limitations

- (a) Level II is responsible for setup , calibrate equipment, interpret and evaluate results for the method in which he is certified .
- (b) Should be responsible for on job training and guidance of ( trainees and NDT level I personnel.)
- (c) Organize and report the results of NDT according to established technique.

#### 65.151 NDT Level III

(a) *Education.*

NDT level III shall have graduated from a minimum four year college or university curriculum or equivalent with a degree in engineering plus one year experience in an assignment to that of an not level II in the applicable NDT method (s)

(b) *Eligibility Requirements.*

The NDT level III shall have sufficient practical background in applicable materials fabrication and product technology to establish techniques and to assist in establishing acceptance criteria when none are otherwise available . the NDT level III shall have general familiarity with other appropriate NDT methods,

(c) *NDT Level III Examinations:*

The examination of level III personnel shall be the responsibility of approved examining authority including approved level III personnel

( 1 ) BASIC EXAMINATION

(required only once when more than one method examination is taken) The minimum No of questions which should be given is as follows .

- (i) 15 questions relating to understanding standard practice document.
- (ii) 20 questions relating to applicable materials ,fabrication and product technology .
- (iii) 20 questions that are similar to published level II question for other appropriate NDT methods

(2 ) METHOD EXAMINATION ( for each method )

- (i) 30 questions relating to fundamentals and principles for each method and
- (ii) 15 questions relating to application and establishment of techniques and procedures for each method and
- (iii) 20 questions relating to capability for interpreting codes, standards and specifications relating to the method .

(3 ) SPECIFIC EXAMINATION

20 questions relating to specifications , equipment Techniques and procedures

(d) *NDT Level III Privileges :*

- (1) Shall be responsible for NDT operations for which qualified and assigned and must be capable of interpreting and evaluating results in terms of specifications
- (2) Should be capable of establishing techniques and procedures , interpreting codes, standards, specifications and procedures
- (3) Should be capable of training and examining NDT level I & II or other level III personnel for certification in those methods

**65.153 General Qualification Requirements :**

(a) Vision Examination

(1) Near-Vision Acuity

The examination should assure natural or corrected near distance acuity in at least one eye such that the applicant is capable of reading a minimum of jaguar number 2 or equivalent type and size letter at a distance of not less than 1inches (30.5) on standard jogger test chart .this should be administrate annually.

(2) Color Contrast Differentiation

the examination should demonstrate the capability of distinguishing and differentiating contrast among colors used in the method this should be conducted upon initial certification and at three year intervals

**65.155 Re-Examination**

The re-examination procedure shall follow the PART 1B / 89

**65.157 Validity And Renewal Of Certificate**

(a) The period of validity of certificate is one year

(b) The certificates shall be invalid if

- (i) The holder does not exercise the privileges of his certificate for at least 6 month within the last 2 years of its validity
- (ii) At the option if the ECCA after reviewing evidence of unethical behavior or any violations to the privilege and limitations.
- (iii) If the individual becomes physically incapable of performing his duties.

- (c) To renew a certificate the holder shall apply for renewal at least two weeks before the expire date of his certificate using the application form for a new period provided that he presents satisfactory work activity for at least 6 months within the pervious 2 years

**65.159 Validation Of Previously Issued Certificate :**

Upon applying for renewal of previously issued license it will be replaced by new type of license

**65.161 Validation Of Foreign Certificates :**

For foreign certificates their holders should present evidence of fulfilling the ECAA required training , experience and examinations along with the certificate to consider its validation