

**Certification Services Division
Newton Building, St George's Avenue
Northampton, NN2 6JB
United Kingdom**

Tel: +44(0)1604-893-811.
Fax: +44(0)1604-893-868.
E-mail: pcn@bindt.org



PCN/AERO A4 ISSUE 2

RADIOGRAPHIC TESTING OF AEROSPACE WELDS

This Appendix to PCN Aerospace Specific Requirements for Qualification and Certification of NDT Personnel covers the specific requirements for PCN certification of personnel engaged in Radiographic Non-Destructive Testing of Aerospace welds.

Certification issued as a result of success in an examination defined herein complies with European standard EN 473, and may be used by employers of NDT personnel to satisfy the qualification requirements of EN 4179 (Aerospace series -- qualification and approval of personnel for non-destructive testing).

Any person requiring information concerning the content of PCN documents should address queries to the PCN Scheme Manager at the above address.



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The British Institute of Non-Destructive Testing is an accredited certification body offering personnel and quality management systems assessment and certification against criteria set out in international and European standards through the PCN Certification Scheme.



EXAMINATION CONTENT

1. Level 2

1.1 PCN aerospace RT certification is presently available at Level 2 and Level 3 to cover aerospace welds. Except where exemptions apply (refer to A0 – PCN Aerospace specific requirements), all Level 2 candidates will be required to attempt an examination comprised of the following parts:

1.1.2 General knowledge of the Radiographic NDT method. Forty multiple choice questions. Time allowed: 60 minutes; pass mark 70%.

1.1.3 Sector specific application of the Radiographic NDT method to aerospace welds. The examination will comprise of thirty multiple choice questions covering standards, codes and specifications, safety precautions in the aerospace environment, basic production processes and associated defects, and defects occurring in service. Thirty multiple choice questions. Time allowed: 60 minutes; pass mark 70%.

1.1.4 Sector Specific Practical examination comprising:

- i) system controls and functional checking of radiographic test equipment. Time allowed: 1 hour.
- ii) preparation of a detailed NDT instruction providing written step by step information on the testing of one of the samples (selected by the examiner for part (iii)) to a provided procedure, code, standard or specification, and subsequently proving the instruction by application. Time allowed: 1 hour.
- iii) practical X radiography of two weldments selected by the examiner from light alloys, stainless steels and heat resistant alloys, processing the resulting radiographs, commenting upon their suitability for interpretation, and reporting significant areas for further investigation in accordance with the code, specification or standard provided (this will include any calculations necessary for inspection sensitivities). Time allowed: 5 hours.
- iv) interpret and report on a total of 8 radiographs. Time allowed: 2 hours.

1.2 The total time allowed for the practical part is 9 hours and the pass mark is 70% per sample tested and 70% for the NDT instruction (failure to detect and report a reportable discontinuity in any one sample, or failure to produce an acceptable NDT instruction, will result in failure of this examination part).

2. Level 3

2.1 Except where exemptions apply (refer to PCN Aerospace specific requirements), all Level 3 candidates will be required to attempt an examination comprised of the following parts:

2.1.1 Basic Examination (described in PCN Aerospace specific requirements).

2.1.2 Main Method Examination

- D) Forty multiple choice questions covering the general theory of the Radiographic testing method.
- E) Thirty multiple choice questions covering the application of the Radiographic NDT method in the aerospace industry sector, including the applicable codes, standards and specifications (the candidate will be provided with any relevant code, standard or specification).
- F) An open book examination in which the candidate will be required to produce a comprehensive Radiographic test procedure embodying an NDT instruction for a specific aerospace product to a provided specification, standard or code.

2.1.3 Level 2 Sector Specific Practical. Applicable to Level 3 candidates who do not hold Level 2 certification acceptable to PCN for Radiographic testing of aerospace welds. Such candidates will be required to successfully complete the Level 2 practical examination described at 1.1.4 above before proceeding to the Level 3 main method examination parts.

CERTIFICATION AVAILABLE

Level 2 Radiographic Testing (Aerospace welds).

Level 3 Radiographic Testing (Aerospace welds).

PCN certification in the radiographic method is valid only so long as the certificate holder also holds certification for either basic radiation safety or radiation protection. In the United Kingdom, this requirement is satisfied by holding PCN valid certification for radiation safety. PCN provides guidance for radiographic certificate holders and candidates based in countries other than the UK.

If current radiation safety certification is not held, the candidate for radiographic certification will attempt the PCN basic radiation safety examination module at the time of the radiography examination. Details of the PCN radiation safety examinations are in Appendix E3.1 to the current edition of PCN/GEN.