



Australian Government

Assessment Requirements for MEM24015 Perform digital and computed radiography

Release: 1

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Modification History

Release 1. New unit.

Performance Evidence

There must be evidence the candidate has demonstrated the ability to:

- prepare two sites for digital radiography
- prepare two sites for computed radiography
- using measures to avoid or minimise radiation exposure to self and others for at least one test occasion, selecting a real time radiography reading station location for maximum safety and efficiency
- use radiation dosimeter to monitor personal exposure to radiation
- prepare area for digital radiographic testing on at least three occasions
- select the most appropriate digital radiographic test technique for the material or application
- optimise the quality of digital radiographic test set-up for different geometries and/or specialised applications
- use digital radiography to perform at least three of the following radiographic test techniques on one occasion each:
 - single wall, single image (plate)
 - double wall, single image (tube)
 - double wall, double image
 - double wall, double image, source superimposed
- process acquired digital radiographic images for viewing
- enhance or modify acquired digital image to optimise defect detection
- interpret and evaluate digital radiographs including checking and confirming indicators and identifying defects
- classify defects in accordance with job specifications and national and international codes and standards
- report test results and complete job records in accordance with procedures relevant Australian and international codes and standards
- calibrate digital radiography equipment on at least two occasions including using phantoms and reference images
- minimise environmental impact of digital radiographic tests.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- standards, codes and regulations relevant to handling and storing digital radiographic equipment and radiation sources
- advantages and disadvantages of film and digital radiography
- safety features of radioisotope cameras and X-ray equipment
- principles and stages of digital radiography including:
 - set up and optimisation
 - image capture
 - mapping
 - image reading (CR)
 - image processing
 - image manipulation and magnification
 - image analysis
 - reporting
- applications and differences between digital radiography techniques including direct radiography (DR), digital detector arrays (DDA), and computed radiography (CR)
- procedures for carrying out each type of radiographic test and for specialised radiographic applications
- principal types of X-ray generators and radioisotopes and their effect on radiographic sensitivity
- cleaning and preparation processes for a range of test surfaces
- types of discontinuities and their consequences/effect on the material
- equipment calibration checks including:
 - laser beam jitter and flare
 - beam alignment
 - spatial resolution
 - line pair resolution
 - unsharpness
 - shading correction
 - image plate or cassette positioning
 - linearity
 - contrast sensitivity
- measuring tool calibration
- absorption of ionizing radiation by matter and the biological effects on living tissue
- X-ray equipment
- gamma ray sources
- shielding thickness calculation methods
- exposure calculations and techniques
- reciprocity law.
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Assessment Conditions

- Assessors must:
 - have vocational competency in performing radiographic testing at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- There must be access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>