



Australian Government

**Assessment Requirements for UEEEC0016
Develop engineering solutions to RF
amplifier problems**

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least one occasion and include:

- understanding the extent of the radio frequency (RF) amplifiers electronic problems
- forming effective strategies for solution development and implementation
- obtaining RF amplifiers electronic parameters, specifications and performance requirements appropriate to each problem
- testing and solutions to RF amplifiers electronic problems
- documenting instruction for implementation of solutions that incorporate risk control measure to be followed
- documenting justification of solutions implemented in accordance with professional standards
- dealing with unplanned events
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, workplace procedures and practices, including using risk control measures
- applying sustainable energy principles and practices.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- RF amplifiers problems, including:
 - RF amplifiers:
 - selection of RF components
 - frequency response of amplifiers
 - gain levelling techniques
 - tuned amplifiers
 - techniques for impedance matching capacitive and transformer coupling
 - double-tuned circuits
 - tapped C and L circuits for Z-matching (use of S parameters and Smith charts)

- small signal RF amplifiers
- RF power amplifiers class A,B,C,D - low power (1W)/high power (kW) - typical circuits
- power combiners
- strip line circuit techniques
- transmission lines and antennas:
 - reflectometry minimum and maximum voltage and current values on a transmission line carrying an RF signal
 - transmission line loss measured in decibels
 - E field directions in relation to antenna elements
 - WHS/OHS standards, codes and regulations of Australian Communications and Media Authority (ACMA) for power, frequency and antenna gain
- engineering principles
- relevant industry standards
- relevant job safety assessments or risk mitigation processes
- relevant workplace documentation
- relevant workplace policies and procedures.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment

Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable workplace operational situations that replicate workplace conditions.

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.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- resources that reflect current industry practices in relation to developing solutions to RF amplifiers problems
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>