

1. Module details

Module name

Television Signal Sources

Suggested structured learning time

A learner possessing the prerequisite skills and knowledge should achieve the module purpose in 36 to 40 hours.

Module code

NUE007

Discipline code

2. Module purpose

To provide participants with the underpinning knowledge and skills to select and locate an appropriate television signal source for a given installation

3. Learning pathway

Intended use in the structured learning program

This module is intended to aid the learner in selecting the most appropriate antennae for a given situation.

Therefore before undertaking this module a learner should have exposure to the various types of antennae available.

Recommended prerequisites

For the most effective learning this module should be undertaken following NUE052, NUE058 and NUE009.

4. Relationship to competency standards

This module provides part of the underpinning knowledge and skills in the 'Evidence Guide' of specific units of competency in the National Electrotechnology Training Package and provides similar support, where mapped, to equivalent units in the National Metals and Engineering Competency Standards. For details refer to the module to unit maps, available from EEQSBA.

This module supports the development of essential capabilities required for electrical licensing.

5. Content

1. Radio waves
 - terms
 - frequencies
 - effects of skip distance, day-night, troposphere, ducking and scattering
2. Antennae systems
 - characteristics and applications of antennae
 - characteristics of cables
3. Signal sources
 - site surveys
 - installation techniques
 - correct selection
 - correct location and orientation

6. Assessment strategy

Assessment methods

Assessment should be progressive reflecting a holistic approach to ensure the module purpose is met. To assist in ensuring validity, reliability and fairness assessment instruments should include practical exercises, assignments and written tests consisting of a number of item types, such as multiple choice, short answer and problem solving.

Conditions of assessment

Normally learning and assessment will take place in a formal learning environment.

7. Learning outcome details

Learning outcome 1

Explain how radio waves are propagated from transmitter to receiver

Assessment criteria

- 1.1 Explain with respect to electromagnetic waves:
 - diffraction
 - reflection
 - refraction
 - polarisation
- 1.2 Identify the frequencies used for UHF and VHF television

	1.3 Sketch a diagram showing: <ul style="list-style-type: none">▪ ground wave▪ sky wave▪ zone of silence▪ line of sight transmission
	1.4 Define tropospheric ducting and scatter
	1.5 State the effect of UHF/VHF multiple path reception on a TV signal
Learning outcome 2	Describe the characteristics of antennae systems, coaxial cables and satellite dishes as TV signal sources
Assessment criteria	2.1 Describe the characteristics and applications of the following antennae <ul style="list-style-type: none">▪ single channel Yagi▪ wideband Yagi▪ combination Yagi▪ colinear Yagi▪ log periodic▪ combination log periodic/Yagi▪ phased array
	2.2 Describe the characteristics of co-axial cables used for the distribution of television frequencies
	2.3 Describe the characteristics of satellite dish antennae used for the reception of TV signals
Learning outcome 3	Select appropriate signal sources for an installation
Assessment criteria	3.1 Explain the purpose of site surveys
	3.2 Describe the techniques used to install signal sources on commercial and domestic buildings, and towers if appropriate
	3.3 Select the correct signal source for use with different frequency bands using manufacturers data

8. Delivery of the module

Delivery strategy

3.4 Determine the correct location and orientation of a signal source using a field strength meter

Delivery strategies must be suitable for learning both theoretical and practical aspects described in the module purpose. It is considered that the most effective method to achieve this is by integration of theory and practice where learners learn by experimentation, research and reports. It is recommended that learning and assessment be facilitated in a holistic manner that may require a learning outcome sequence other than that indicated in the module.

Resource requirements

Resources should be sufficient for learners to carry out learning activities on an individual basis.

Suggested Learning Resource:

Hills Industries, LTD, 1991, Antenna Installation and Television Manual, Hills Industries

Where this module is used in an approved Traineeship or Apprenticeship program learners should be advised to obtain, where available, respective EEQSBA1 *User Guides* (these outline in detail what training and work performance the Learner is required to undertake for the program).

Occupational health and safety requirements

A safe and healthy environment will be provided for learners and teachers. Safety procedures for the particular learning facilities shall be followed as part of the learning / teaching activity and assessment.