

1. Module details

Module name

Television Signal Source Distribution Components

Suggested structured learning time

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

Module code

NUE008.1

Discipline code

2. Module purpose

To provide participants with the underpinning knowledge and skills to select appropriate television signal source passive and active distribution components, and to select and terminate appropriate distribution cables.

3. Learning pathway

Intended use in the structured learning program

This module is intended to aid the learner in their awareness of the range of signal source components available in the TV industry.

Therefore before undertaking this module a learner should have experienced a range of television installations.

Recommended prerequisites

For the most effective learning this module should be undertaken after completing NUE007 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. Cable selection
 - Cable types
 - Cable characteristics
 - Use of balun
 - Cable connectors and sockets
2. Signal amplifier
 - Operation of amplifier
 - Characteristics of amplifier
 - Purpose of various amplifiers
 - Amplifier power supplies
3. Distribution components
 - Signal splitters
 - Directional couplers
 - Diplexers, multiplexers attenuators combiners and filters
4. Encoders and decoders
 - The use of encoders/decoders
5. Faults
 - Layout of components
 - Signal strength
 - Sources of interference

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

Select and terminate suitable cable for the distribution of TV signals from the source to the receiver

Assessment criteria

- 1.1 List the types of cables used in the distribution of TV signals
- 1.2 Describe the following characteristics of distribution cables
 - Impedance
 - Attenuation
 - Return loss
 - Screening efficiency
- 1.3 Explain other considerations when selecting a distribution cable e.g. mechanical strength
- 1.4 Explain the purpose of the balun
- 1.5 List suitable connectors and sockets for the termination and outlet of distribution cables
- 1.6 Terminate distribution cables

Learning outcome 2

Select a suitable signal amplifier

Assessment criteria

- 2.1 Explain the basic operation of a basic signal amplifier
- 2.2 Describe the characteristics of TV signal amplifiers
- 2.3 Describe the purpose of:
 - Masthead amplifiers
 - Distribution amplifiers
- 2.4 Describe the function of amplifier power supplies

Learning outcome 3

Select suitable passive distribution components

Assessment criteria

- 3.1 Describe the operation of signal splitters
- 3.2 State the purpose of directional couplers

	3.3	State the function of: <ul style="list-style-type: none">▪ Diplexers▪ Multiplexers▪ Attenuators▪ Combiners▪ Filters
Learning outcome 4		Describe the purpose of encoders and decoders
Assessment criteria	4.1	State the purpose of: <ul style="list-style-type: none">▪ Encoders▪ Decoders
	4.2	Describe a method of programming a decoder
Learning outcome 5		Identify faults in various signal source distribution systems
Assessment criteria	5.1	Sketch a diagram showing all distribution components from signal source to receivers
	5.2	Measure the signal strength at any given point in the distribution system
	5.3	Identify common sources of interference of the distribution system
8. Delivery of the module		
Delivery strategy		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.