You have been given a Project of installing a radio base station.

Simulated Radio base station installation on NEC770 microwave radio system.

In your report describe the tasks involved, add photos of test equipment and test results and answer the following questions:

1. Documentation ( 5 marks )

What 6 items of documentation is required prior the installation.

* Manufactures handbooks, operation, installation, maintenance, spare parts
* Local installation instruction from, e.g. RailCorp, Telstra, Optus (work aids)
* Council approval
* Environmental impact study, large transmission power
* ACMA paper work and licence details of frequency and power
* After acceptance: Installation sign off

Acceptance result

Radiation on folder update

Site/Rack/shelf in database

1. WHS issues ( 5 marks )

List the 5 hazards involved in radio communications

* Radio Frequency Radiation
* Manual Handling
* Electrical Hazard
* Environmental issues
* Elevated Work Practices

1. Test equipment and accessories’. ( 5 marks )

List some 3 items of test equipment required and 6 accessories needed.

Test Equipment

* Multimeter
* Spectrum analyser
* Constellation analyser

Accessories

* 50 ohm dummy loads
* Coax test leads
* Radio Frequency attenuator
* Coax cable Connectors
* Test Cables
* Radio Frequency connector Adapters

1. Radio system tests ( 15 marks )

List and describe 6 tests that are required when installing a radio system and list system parmeters and specifications:

ETC VSWR, DTF, RL, BER, TX power, AGC voltage RX input, Antenna panning

1. Locate the voice and data inputs on the NEC770 radio base station, and list Tools for terminating data and voice ( 5 marks )

List some five typical tools required for installing the radio base station.

Describe the termination voice and data input cables.

1. Regulations and site access. ( 5 marks )

List RF and site access regulations that must be followed before the installation can commence.

1. Radio base station parameters, setting and configuration/specifications. ( 15 marks )

List Frequency, power o/p, data input, polarisation, alarms etc of the NEC770 radio base station.

Nec770 setup, is it hardware or software based.

1. Installing modules, Labeling, spares and modules serial numbers. ( 5 marks )

What procedures must you follow your install modules/cards.

Once installed, describe labelling and spare module procedures.

1. List some 4 typical Local and network alarms and describe their cabling termination ( 5 marks )
2. .On the NEC770, list 3 different types cabling and connectors. Describe where they are found and identify the tools required for termination.( 5 marks )

Also, you might have a optical input from an SDH link coming into the radio base station. Describe the cleaning process for the fibre connection.

1. Take photos of the NEC770, describe and identify the following components: ( 15 marks )
   1. TX
   2. Rx
   3. Modulators
   4. Demodulators
   5. Power supplies
   6. Multicoupler filters
   7. Baseband input and outputs
   8. Supervisory and control inputs and outputs.
2. Draw a detailed block diagram of the NEC770 ( 15 marks )
3. Describe and identify how power is feed to the NEC770. ( 4 Marks )

* 240 v AC > Rectifier > 48 v DC > Two Power supplies > + 9v DC

+ 5v DC

1. Locate and describe earthing cables on the radio base station.

* Its a green and yellow cable it 6

Ground

1. List the process of installing the radio base station.

(bb cables, IF cables, RF cables, antenna, power supllies, earthing, bb cards, mod/demod cards, TX/RX units, alarm/supervisory cables etc)