



Section 1.

General

“Information contained within this section shall be read in conjunction with all sections of this Installation Supply Connection Tests & Procedures manual”

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1.2 Changes Summary

| Date | Summary of Changes | Section |
|-----------|---|---------|
| July 2004 | Abolishment of electricity supply- Expanded to cover all situations O/H,U/G POEL | 4 |
| Oct 2005 | Establishment of NITP- demonstration of 2 alternatives used in OH service replacement . | 3 |
| June 2006 | Reformat of the procedures manual into new sections 1-5. Layout similar to SIR manual. | 1-5 |
| June 2006 | Re badged manual with VESI logo manual in line with Lineworker Handbook. | 1-5 |
| June 2006 | Rewording & title changed "Network Operator" replaced by "Distributor". | 1-5 |
| June 2006 | Details and operating principles of NST included in description | 2 |
| June 2006 | Purpose of NST test revised in line with manufacturers description. | 3 |
| June 2006 | New procedure: -Connection of single occupancy greater than 100amps -CT metered- connected from a Supply Connection Facility. | 4 |
| June 2006 | Admin statement to inc reference to VESI & disclaimer + copyright. | 1 |
| June 2006 | New Item Definitions added to aligned to Green book & SIRs where appropriate. | 1 |
| June 2006 | HV injection definitions checked. | 4 |
| June 2006 | Labels section created - examples used in the different businesses. | 2 |
| June 2006 | New Item :- Alternative Supplies - reference made in procedure for Test for De energised. | 5 & 3 |
| June 2006 | New Item:- Lack of independent earth effects Multiple Occupancies + Alts & Ads to Direct Metered occupancies. | 5 & 4 |
| June 2006 | Frangible P/L Columns diagram updated displaying typical earthing/ connection arrangement | 4 |
| June 2006 | New Item:- Supply Capacity Controller Devices (SCCD)- configuration and influence on test procedures where fitted. | 4 |
| June 2006 | New Item - Principles of Test & Connection procedures. | 4 |
| June 2006 | New Item – Reference to procedure for Non Compliant tests 1.11 inserted on the cover of Section 3. | 3 |

| Date | Summary of Changes (cont) | Section |
|-----------|---|-------------|
| June 2006 | Meter Load tester Note added re disturbance of dust in Meter box when hairdryer type Load tester used. | 2 & 3 |
| July 2006 | Neutral Impedance test Note added indicating possible Neutral/earth parallel path circuit to determine the result | 3 |
| July 2006 | Modification to SCCD diagram –note added to diagram location 2 – no longer approved installation method | 4 |
| July 2006 | NST -Neutral impedance fault finding flow charts - modified using a flow diagram program | 5 |
| July 2006 | NST Development & Training Working Group name changed to “VESI NST Connection Tests and Procedures Committee” | 1 |
| Sept 2006 | Abolishment of Electricity Supply – Drawing for Typical OH Abolishment added | 4 |
| Sept 2006 | Added to Non compliant test results (1.11).”.... safe condition <i>IAW with distributors procedures</i> | 1 & 3 |
| Sept 2006 | Section 3.6 Reworded to cater for SCCD as SPD “Intermittently energise the installation wiring via the SPD and simultaneously test.....” | 3 |
| | All amendments listed prior to this point are included in VESI Manual publication and issue of Nov 2006 | |
| Nov 2008 | Section 3.3 Added note to indicate that water pipes of older earthing systems could be considered as a NITP if proven to be connected to the neutral | 3 |
| Feb 2009 | Section 3.3. Altered wording of “priority order” to preferred - if any NITP test =>0.5 it should be able to be used | 3 |
| Mar 2009 | Section 1.10 Added wording “... to work in accordance with” .. | 1 |
| Mar 2009 | Section 5.3 Added note NOTE For an existing installation already on supply it is considered that the appropriate installation tests have been carried out at the time of connection | 5 |
| Mar 2009 | Section 3.6 Added Single person Check test method inc use of Voltmeter with Hold facility. 5volt max value attributed = NST fail level >5v \pm .5% =5.25v max. Corrected footer | 3 |
| May 2009 | Cover and Introduction changed to reflect current dist companies and committee representatives. Removed Nov date | Intro/cover |
| June 2009 | Added & “Information contained within this section shall be read in conjunction with all sections of this ISCTP manual” plus VESI logo at the front of each section for separate printing | 1-5 |

1.3 Definitions

The definitions contained herein apply to these Installation Supply Connection Tests and Procedures and may vary from definitions contained in other documents.

Alive- means energised or subject to hazardous induced or capacitive voltages.

Approved- means having appropriate organisations endorsement in writing for a specified function.

Authorised – A person with the technical knowledge or sufficient experience who has been approved or has the delegated authority to act on behalf of an organisation to perform the duty concerned.

Conductor – means a wire, cable or form of metal designed for carrying electrical current.

Consumer Mains – means hose conductors between the point of supply/consumer terminals and the main switchboard.

Consumer's Terminals – means the junction at which the consumer mains connects to the Distributor's service cable or supply main conductors.

Customer – means the person or body which requires electricity to be made available to an electrical installation on a property, and includes the owner, occupier or tenant as the case may require or a group of bodies acting as one in the provision of electricity to their property.

CT – means current transformer

De Energised – means not connected to any source of electrical supply, but not necessarily isolated.

Distributor – means a person who holds a Distribution Licence, or who is exempted from holding a licence of the Electricity Industry Act.

- A "Distributor" is also known as the Local Network Service Provider (LNSP).
- A "relevant Distributor" is the Distributor who operates the Network in the area associated with electrical installation.

Electrical Installation – means consumer terminals, their enclosure, and all wiring and equipment downstream and supplied from those terminals, except for the Distributor's network assets and where applicable, the metering assets.

An electrical installation does not include Distributors network assets including:

- Meter equipment within an electrical installation, and servicing and distribution equipment upstream of the consumer terminals.
- Network assets on land occupied by a Distributor that is not used for the consumption of electricity on that land or incidental to that consumption.
- Fuse cartridges for a Service Protection Device and/or Service Disconnection Device.

FOLCB – means Fused Overhead Line Connection Box.

FSD – means Fused Switch Disconnecter eg a "Krone" box

HV – means High Voltage which is a nominal voltage exceeding 1000v AC or exceeding 1500v DC.

Isolated – means not connected to any possible sources of electricity supply by means which will prevent unintentional re-energisation of electrical apparatus and which is assessed as a suitable step in the process of making safe for access purposes.

LEIW – means Licensed Electrical Installation Worker as issued by Energy Safe Victoria (ESV).

“Electrician’s” qualifications - means a holder of an “Electrician’s” licence

“Inspectors” qualifications - means a holder of an “Inspector’s” licence

LV – means Low voltage which is a nominal voltage exceeding 50v AC/120v DC but not exceeding 1000v AC. or 1500v DC.

MEN – means multiple earthed neutral.

NITP – means Neutral Integrity Test Point being a point on the installations earth system proven to be connected the installations neutral system in accordance with these procedures.

Occupancy – means an electrical installation or part thereof, which is supplied with electricity through a specific meter or meters and for which an individual electricity consumption account is rendered.

Occupancies Multiple or Multiple Occupancies – means more than one Occupancy connected to the same electrical installation.

Private Electric Line – any electric line that conducts electricity within an electrical installation from the Point of Supply.

Private Overhead Electric Line (POEL) – all components. of any private electric line that is constructed as aerial wiring system

POA – means the Point Of Attachment at which an overhead aerial service cable is attached to the structure containing the electrical installation.

POS – means the Point of Supply at which the electricity Distributors service cable or supply main connects to the consumer terminals.

REC – means Registered Electrical Contractor.

Responsible Officer – means the officer appointed by the relevant Distributor to be responsible for the administration of these Rules.

Dependent on a Distributor’s structure, there may be multiple Responsible Officers with specific responsibilities, eg, negotiation for supply, provision of substations, specification of points of supply, types of supply, servicing and metering etc.

Service Cable / Line – the final span or section of a Distributor’s low voltage aerial or underground network asset that is connected to the consumer terminals.

Service Equipment – means equipment owned by the Distributor and used to connect supply to an Electrical Installation

SCCD – means Supply Capacity Control Device – a customer provided circuit breaker requested by the Distributor to limit the installation load on the network.

SDD – means Supply Disconnection Device - a disconnection and reconnection device of supply as required by Service & Installation Rules

SPD – means Service Protection Device – a device required by the Electricity Safety Act and clause 7.4 (Service Protection) of the Service & Installation Rules.

Shall – is to be understood as mandatory.

Should – is to be understood as non-mandatory, i.e. advisory or recommended.

Supply Connection Facility – means a facility containing consumer terminals, eg, pillar, cubicle, switchboard or CT enclosure.

Underground Reticulated Distribution (URD) – is defined as an underground cable network used in areas where no electrical protective device is provided at the origin of the individual service cable.

Un-metered Supply – means a supply that is not metered

1.4 Administration

These Installation Supply Connection Tests and Procedures are administered by a committee comprising of nominated representatives from Victorian Electricity Distributors, CitiPower Pty, Jemena Electricity Networks, Powercor Australia Ltd, SP-AusNet and United Energy Distribution.

This committee have accepted the tests and procedures contained in this document following their development by the committee, and endorsement from their respective companies and as such issue the tests and procedures as a Victorian Electricity Supply Industry (VESI) document.

The tests and procedures are reviewed on a regular basis. Revisions and additional tests and procedures may be included in this document from time to time and it is therefore important the user ensures they are utilising the current document.

Members of the VESI NST Connection Tests and Procedures Committee at this time are: Kevin Michael (CitiPower), Peter Hocking (Chairman - Powercor), Wayne Kelly (Jemena). Peter O'Neil (Jemena), Nino Agostinelli (SP AusNet) and Laurie Sharples (SP- Ausnet)

1.5 Distribution

Revised copies of these tests and procedures are distributed from time to time so it is important the user ensures they are utilising the current document.

Each electricity Distributor's nominated representative serving on the VESI NST Connection Tests and Procedures Committee is responsible to ensure arrangements are in place within their respective companies to ensure authorised users are aware of the latest documents.

1.6 Scope

These tests and procedures are to be used by persons authorised by the above companies for the connection of all customer installations, occupancies, and/or network assets as described in this document.

The tests and procedures:

- apply from the connection point of the installation to the network and/or occupancy to its connection point, and include the service cable supplying the connection point where this is applicable.
- do not apply to the low voltage reticulation electricity network upstream of the service connection to that network.
- supersede the relevant tests and procedures contained in the 1995 Line Workers Handbook, and other relevant VESI procedures.

1.7 Objectives

The objective of these tests and procedures is to ensure the safe connection to the electricity supply networks by proving the correct supply connection to each main switchboard, occupancy switchboard or equipment to be supplied. This objective is achieved by ensuring the supply connection has the correct:

- polarity
- phase sequence;
- connection and continuity of the neutral conductor;
- connection and operation of the metering equipment

1.8 Tests

To prove the correct supply connection it is necessary to perform the applicable tests and procedures detailed in this document at the appropriate stages where work is performed, ie:

- Test for de-energised
- Neutral Integrity Test Point (NITP) - Test
- Underground Consumer Mains Test
- Neutral Test and Supply Test
- Polarity Test
- Check Test
- Neutral & Supply Test
- Meter Load Test
- Phase Sequence Test

Where procedures contained in this document cover specific work, the tests shall be performed in accordance with those procedures.

1.9 Innovation

Alternate testing equipment and/or tests and procedures are not precluded, provided they are approved by the relevant electricity Distributor and achieve equal or better outcomes.

1.10 Authorisation

Persons performing these tests and procedures on behalf of an electricity Distributor shall be authorised by the relevant Distributor to work in accordance with the Code of Practice on Electrical Safety (Green Book) and Electricity Safety Act.

This requires the person to be appropriately trained and assessed as competent in the application of the tests and procedures to the satisfaction of the relevant Distributor prior to authorisation.

1.11 Non - Compliant Test Results

Where acceptable results are not attained in accordance with these tests and procedures during their application, the work site shall be maintained in a safe condition in accordance with distributors procedures and:

- Where the worker has the competency and authorisation to identify and rectify the cause of the deficient test result they shall do so.
- Where the worker does not have the competency and authorisation to identify and rectify the cause of the deficient test result, they shall report the matter to their supervisor and ensure affected persons are advised.

1.12 Disclaimer

These Tests & Procedures have been published by, CitiPower, Jemena Electricity Networks, Powercor Australia Ltd, SP-AusNet and United Energy Distribution. The document has been compiled using drawings, guidelines and information that comply with the relevant acts and regulations of the State of Victoria at the date of publication.

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