

## SAFETY ALERT

### Testing of connections to low voltage electricity networks

The Industry Safety Steering Committee (ISSC) which includes representatives from all NSW Distribution Network Service Providers (DNSP), the Department of Planning & Environment and the National Electrical Contractors Association (NECA) would like to remind all workers performing service work and other connection work on the LV network of the requirements for performing testing.

All NSW DNSPs (Ausgrid, Endeavour Energy, Essential Energy) require, as a minimum, testing of service connection work to be performed in accordance with Australian Standard (AS) 4741:2010 *Testing of connections to low voltage electricity networks*. This standard defines the minimum tests required to confirm low voltage connections affecting the polarity or neutral integrity of the electricity network or supply to any electrical installation are correct.

#### Action required

Minimum tests required within AS4741:2010 include:

- Polarity
- Neutral integrity
- Phase rotation
- Phasing confirmation

Failure to correctly perform polarity and neutral integrity testing, can significantly increase the likelihood of a hazardous voltage (capable of electrocution) being applied to normally earthed metalwork and frames of appliances within electrical installations. In addition an incorrect polarity (active phase connected to neutral conductor) will also increase the likelihood of property damage due to high currents being applied to the neutral and earthing conductors possibly leading to property fire.

Due to the nature of an incorrect polarity or a hazardous voltage (high resistance neutral) on normally earthed metalwork, standard protection equipment installed at the electrical installation will not operate to remove the hazard.

#### Specific control measures

Test procedures should be developed that meet the requirements of AS4741:2010 including any additional requirements of the DNSP. Only authorised and competent workers are to carry out test procedures.

AS4741:2010 requires workers performing the test to have relevant qualifications to conduct the testing, relevant authorisation and current competencies in the testing and understanding of the operation of a Multiple Earth Neutral (MEN) system assessed under the authority of a Registered Training Organisation. Workers competency is required to be regularly assessed.

Remember, if you have any doubt following the test procedures or results obtained do not connect the installation and leave active and neutral conductors isolated and danger tagged until all doubts are resolved.



May 2019

This document contains safety information following inquiries made by the ISSC about an incident or unsafe practice. The information contained in this document does not necessarily include the outcome of the ISSC's response to an incident or unsafe practice.

#### Disclaimer

The State of NSW, its agents and employees expressly disclaim and do not verify any information or representation, express or implied in this document and are not liable (whether by reason of negligence, error or omissions, lack of care or otherwise) to any person for any damage, cost, loss or expense whatsoever which has occurred or may occur in relation to that person relying on the accuracy of this document, or taking or not taking (as the case may be) action in respect of any information or representation referred to above in respect of the document.

This document may contain Australian Standards information and may include some of your obligations under various legislation that DPE administers. To ensure you comply with your legal obligations you must refer to the appropriate legislation found on the NSW legislation website: [legislation.nsw.gov.au](http://legislation.nsw.gov.au)

This publication is not a comprehensive statement of the law and is merely indicative and should not be considered to be conclusive. It does not apply to particular problems or to individuals or as a substitute for legal advice. You should seek independent legal advice before relying on this information.