

Surge Protection Testing

ESI-11-11

Applicability

ARTC Network Wide
SMS

Publication Requirement

Internal / External

Main Points

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<ul style="list-style-type: none"> Testing of Arrestors and Varistors

Document Status

Version #	Date Reviewed	Prepared by	Reviewed by	Endorsed	Approved
1.0	30 Jan 15	Standards	Stakeholders	GM Technical Standards	Operational Safety & Environment Review Committee 10/02/2015

Amendment Record

Amendment Version #	Date Reviewed	Description of Amendment
1.0	30 Jan 15	New Instruction. Document rebranded following OSERC approval.

1 Scope

The Work Instruction covers the testing of surge arrestors and other surge protection devices including Varistors. It is to be read in conjunction with ESM-11-01.

2 Background

Signalling circuits include surge arrestors or varistors or varistor inductor panels to limit surges flowing into sensitive electronic or computer based equipment. Varistors and arrestors have different states based on the voltage (or surge) being applied at a point in time. The resistance changes from normally open circuit to short circuit or low impedance to allow the electrical surge to flow to earth.

3 Actions

Suppliers of arrestors are also able to provide an arrestor tester suitable for the device. The arrestor is typically plug swappable. Testing the arrestor requires it to be removed from the circuit socket and placed in the arrestor tester. This tests the correct operation of the arrestor, that it is not short circuit and the operating voltage at which it provides the low impedance path for the surge.

The Signal Technician inspects the unit for physical damage and undertakes the test and confirms:

- The arrestor is not short circuit;
- The arrestor functions to provide a low impedance voltage; and
- The strike voltage is as per the product rating.

The Signal Technician then replaces the arrestor back into the circuit. If no arrestor tester is available then undertake tests as for a Varistor (see below).

The Signal Technician firstly isolates one leg of the Varistor from the signalling circuit. The unit is examined for physical damage and if no damage is observed tested with an ohmmeter. The unit should have a high impedance. If it has a low impedance then it is faulty and is to be removed immediately. It is to be replaced as soon as practicable considering that the rest of the circuit is unprotected from surges while it is not in place. If it cannot be replaced the same day the Signal Team Manager, Signal Maintenance Manager or Signal Engineer is to be informed.