



Flashover during live LV jointing

On 2 May this year, a flashover occurred whilst a 300mm² waveform cable was being jointed onto a live 0.1in² PILC cable for a network reinforcement. There were no injuries and LV fuses operated correctly. The flashover was between the open L1 connector block and the waveform neutral/earth wires.

It was found that approved screening material had not been applied to the neutral/earth wires as required by [OPSAF-12-011](#) (LWM 4.1), part 11 step 3.

The jointer had applied insulation tape continuously along the length of the wires. This is not current practice as it prevents resin penetrating within the bunched wires. It is also not an effective screening material.

After the wires had been connected to the PILC neutral core, the setting of the brown waveform core in position in the L1 connector block caused movement of the cores of each cable, allowing contact to be made – with the connector either piercing the tape or touching a gap in the tape.

Breaching a 300mm² cable onto a 0.1in² cable is unusual and contributed to the incident due to the length and flexibility of the exposed PILC cores. The design had intended for the 300mm² to be breached onto a 0.2in² cable but due to communication breakdown the joint was completed at the wrong position. The use of screening material on neutral/earth wires is mandatory in all cases and would have eliminated the chance of a flashover.

Neutral/earth wires continuously covered in insulation tape

Approved screening material not applied to neutral/earth wires



Flashover between L1 connector and inadequately covered neutral/earth wires



Training centre example showing neutral/earth wires taped approx. every 100mm

Recommendations and action points

- Approved screening material must always be used as required by the live working procedures. Refer to [OPSAF-12-024](#) (LWM 8.1) for details on the approved materials.
- Insulation tape shall not be relied upon for screening during live work procedures.
- The wires of waveform cables must not be taped along their full length. Taping approx. every 100mm is acceptable.
- When undertaking live work, always consider the effect of moving a conductor and what might occur as a result.