Letter of instruction

Information for users

The following document: NR/L3/SIGELP/50001/SPS T001 Issue 1 has had changes made to it, most recently, with effect from 15 March 2016.

Instructions for use

It is essential that you first read and understand each letter of instruction pertaining to the standard before proceeding to use the standard. You must then apply the requirements of each letter to the standard.

NR/BS/LI/369	Issue 1	15 March 2016	Proceed to letter ▶
NR/L3/SIGELP/50001/SPS T001	Issue 1	06 June 2015	Proceed to standard ▶

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Full document details: NR NR-L3-SIGELP-50001-SPS T0 2015

NR/L3/SIGELP/50001 Working on or near 650V Signalling Power Supplies		
NR/SPS T001		
Earth Electrode Testing		
Issue No. 01	Issue Date: 6th June 2015	Compliance Date: 6th June 2016

Includes:	Earth electrode testing at equipment housings (Signalling or FSPs) containing 650V IT based Signal power supply equipment.
Excludes:	Earth electrode testing at Principal Supply Point (PSP) installations. 650V TN based systems.

GENERAL

Safety: Refer to NR/SPS S001 before carrying out this maintenance specification.

Undertake any corrective maintenance issues as detailed in NR/SPS M002.
Record measurements on NR/SPS F001.
Refer to NR/L3/SIGELP/50001 for the definition of maintenance actions.
This Work Instruction details the test procedures to measure the resistance of earthing electrodes that are providing touch voltage (Safety Earth) or lightning protection (FTE) for equipment housings containing 650V IT based power supplies.

1. Preparation

1.1 Calculate or obtain the maximum acceptable earth resistance as below:

Where either signalling or telecoms equipment inside the housing has a requirement for a lower value of earth value, e.g. Fast Transient Earth (FTE) for SSI / CBI equipment, refer to the appropriate equipment standards for the required earth resistance value. At equipment housings where this is not a requirement, then calculate the required earth rod resistance value for safety, using the Target Earth Calculation Model (TECM) available from the Signalling Innovations Share-point site:

(http://oc.hiav.networkrail.co.uk/programmes/stamp/EP%20Pages/TECM.aspx)

1.2 Record this value in the appropriate section of NR/SPS F001.

There are two methods of earth electrode testing detailed within this work instruction.

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When choosing the appropriate test, it is recommended that the Comparative method is chosen first, followed by the Fall of Potential method with metal plates and finally the Fall of Potential method using metal spikes.

The comparative method can be used when site constraints do not easily allow the use of spikes or earth plates to effectively measure the earth value i.e. tarmac on station platforms. Suitable earth reference points for the comparative method can be:

- OLE Structures,
- Station metalwork such as canopy supports, end of platform gates (except lighting columns),
- In ac electrified areas only, the traction return rail,
- Metallic signal posts and associated ladders.

The connection point to any the above metalwork may require preparation in order to make a good electrical connection for the test.

Where equipment housings are installed in clusters then the chosen test method should be carried out at the equipment housing containing the connection to the earth electrode / farm.

MET – Main Earth Terminal

1.3 If this test is being carried out under train traffic, a SMTH competent staff member shall perform an earth bus bar test (NR/SMS/Test/051) to confirm that there are no signalling circuit earth faults present. If there are earth faults present then the earth electrode testing shall not be carried out.

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